

MCX



INSTALLATION AND MAINTENANCE MANUAL



This installation and maintenance manual must be read in its entirety before any work is carried out. It must always be available close to the equipment.

The safety instructions and instructions in this manual must be followed.

The illustrations in this manual are for information purposes only and may differ from the actual design of the air handling unit.

The MCX air handling unit will be referred to throughout this document as the unit or the AHU or the MCX.

READ THE FULL PRODUCT MANUAL

QUALIFIED STAFF

Handling Installation Maintenance

PERSONAL PROTECTIVE EQUIPMENT

Safety helmet Protective gloves Safety footwear Protective goggles

Service Division
Tel. +33 (0)2.14.05.00.14
After Sales Service Request: sav@eoliance.com
Request for spare part(s) (out of warranty): commandespieces@eoliance.com
From 8H00 to 12H00 & 13H00 to 17H00, Monday to Thursday and from 8H00 to 12H00 on Fridays.

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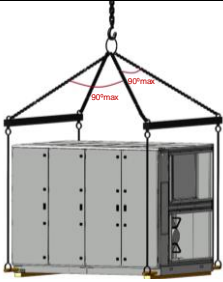
I. Step-by-step instructions



II. Safety instructions
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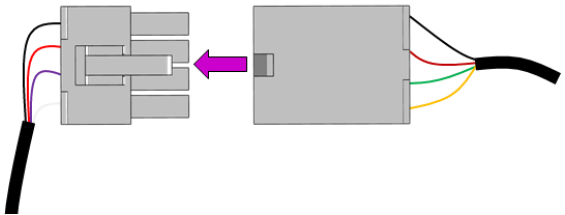
III. Description of the equipment
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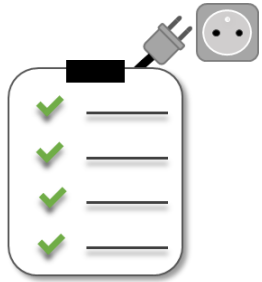
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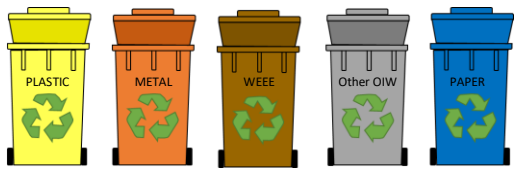
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II. Safety instructions

A. Warnings



Installation and maintenance work must be carried out by qualified, experienced personnel.

You must follow the precautions for use scrupulously during all interventions. Labels are affixed to the equipment to remind you of the safety instructions.

As a general rule, you must comply with all applicable safety regulations and standards. If the instructions in this document are not followed, no liability will be accepted for damage to the unit.

B. Scope

MCXs can only be used for: AIR HANDLING (Heating - Cooling - Filtration - Humidification - Dehumidification) under the specified normal operating conditions (altitude, temperature, humidity, pollution).

The MCX range is designed and tested for predefined temperature and pressure ranges.

TEMPERATURE	UNIT EXTERIOR	UNIT INTERIOR	COLD FLUID	HOT FLUID
OPERATING	- 20°C / + 40°C	- 20°C / + 60°C	Indicated on nameplate	Indicated on nameplate

MAXIMUM PERMISSIBLE PRESSURE	COOLING COIL	HEATING COIL
OPERATING	Indicated on nameplate	Indicated on nameplate

The manufacturer is not liable for any damage resulting from improper use.

C. Clearances

The following clearances are required to work on the equipment:

- Electrical clearance (in accordance with regulations) to work in proximity to the unit or on the electrical components
- EC Directive No 842/2006 must be complied with for any work on the refrigeration system.

D. Interventions

For your own safety, when working on the unit, wear your personal protective equipment, such as a safety helmet, protective gloves, safety footwear, safety goggles, etc.



Safety helmet



Protective gloves



Safety footwear



Protective goggles

Installation, commissioning and maintenance work on the MCX must be carried out by QUALIFIED PERSONNEL.

Before any work is carried out on the unit, the following safety instructions must be observed:

- Switch off the power supply
- Wait until all moving parts have stopped (motors, fans, pulleys, belts, dampers, bearings, etc.). It may take several minutes for the unit to come to a complete standstill.
- Wait for hot parts to cool down (heating coil, electric coil, motors, etc.)
- Wait for the pressures inside and outside the unit to equalise

During any intervention, ensure that the maximum permissible pressures for the unit are never exceeded, in particular by ensuring that any dampers are open. Take account of any automatic time-outs or automatic control systems.

E. Warranty

Our units are covered by a 24-month warranty as of delivery. This warranty is limited to parts.

The 24-month warranty is extended to cover parts and labour when the air handling unit is commissioned by an Approved Technical Station (STA).

Our warranty covers motors subject to the terms and conditions of our supplier's warranty. The installer must not work on the motor under any circumstances. Should it fail to comply with this rule, it will lose the benefit of the warranty. For further information, please refer to the manufacturer's warranty.

III. Description of the equipment

A. Means of identifying the unit

The various means of identification (nameplates, stickers) must always be visible. They must not be altered, removed or modified.

1. Transport label

The unit can be made up of several blocks, which can be delivered in one or more packages.

A transport label containing the following information is affixed to each block:

- Customer name
- Order and reference number

2. Company nameplate

The company nameplate is affixed to the unit and indicates the characteristics of the unit:

- Order number
- Type of unit
- Characteristics of the motor(s)
- Characteristics of the fluid(s), if applicable
- Date of manufacture

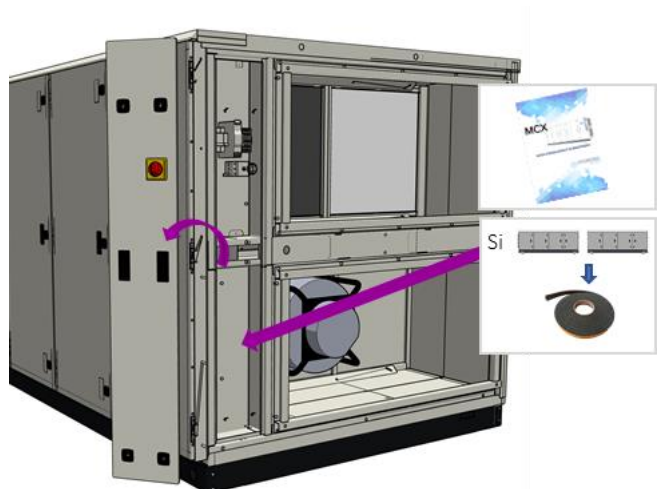
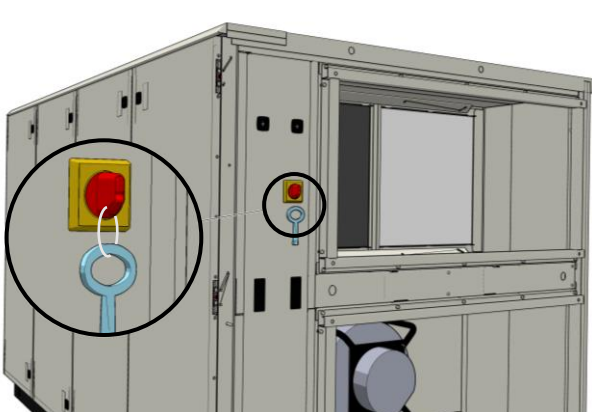
In the case of a unit made up of several blocks, a nameplate will be affixed to one of the blocks. The other blocks will have stickers numbered 1,2,3, etc., which will be used to connect the blocks.

3. Document folder

Documents are systematically supplied with the unit:

- Installation and maintenance manual
- Control manual, if applicable
- Certificate of incorporation
- Final inspection report

4. Accessories

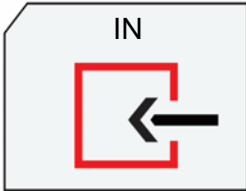


Our units are photographed prior to shipping to ensure that the order is complete. If in doubt, a copy can be provided to you on request.

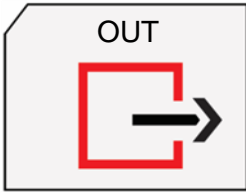
B. Pictograms



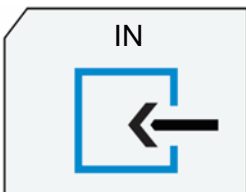
Fire hazard Keep filters away from flames



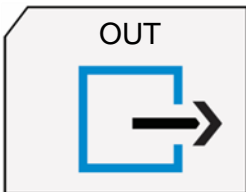
Heating coil manifold inlet (IN) [RED]



Heating coil manifold outlet (OUT) [RED]



Cooling coil manifold inlet (IN) [BLUE]



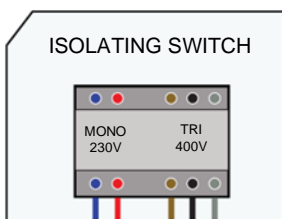
Cooling coil manifold outlet (OUT) [BLUE]



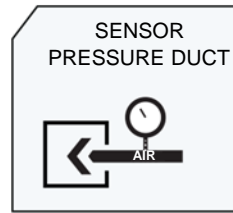
Earthing obligation



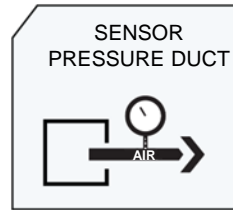
High voltage Danger of death Do not enter



Isolating switch wiring to be respected



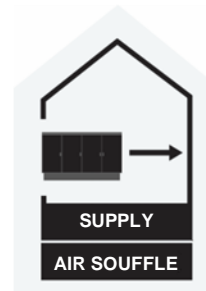
Duct pressure sensor in the intake line



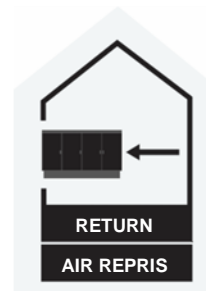
Duct pressure sensor in the supply line



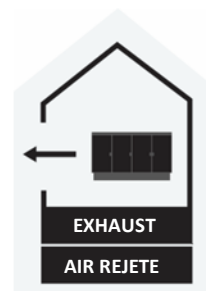
Air inlet



Air outflow



Air intake














Air extraction

C. Elements of unit

1. Main components

The main components of a unit are as follows. Depending on the requirements, certain components may not be included.

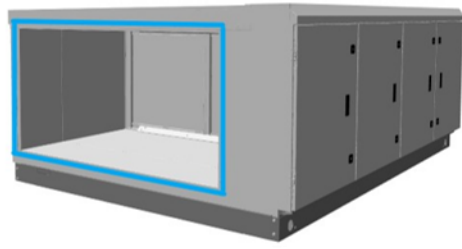
	Pre-filter		Hydraulic coil
	Filter		Electric coil
	Motor fan unit		Recovery coil
	Rotary heat exchanger		Humidifier
	Plate heat exchanger		Sound trap
	Damper		

2. Single-flow unit

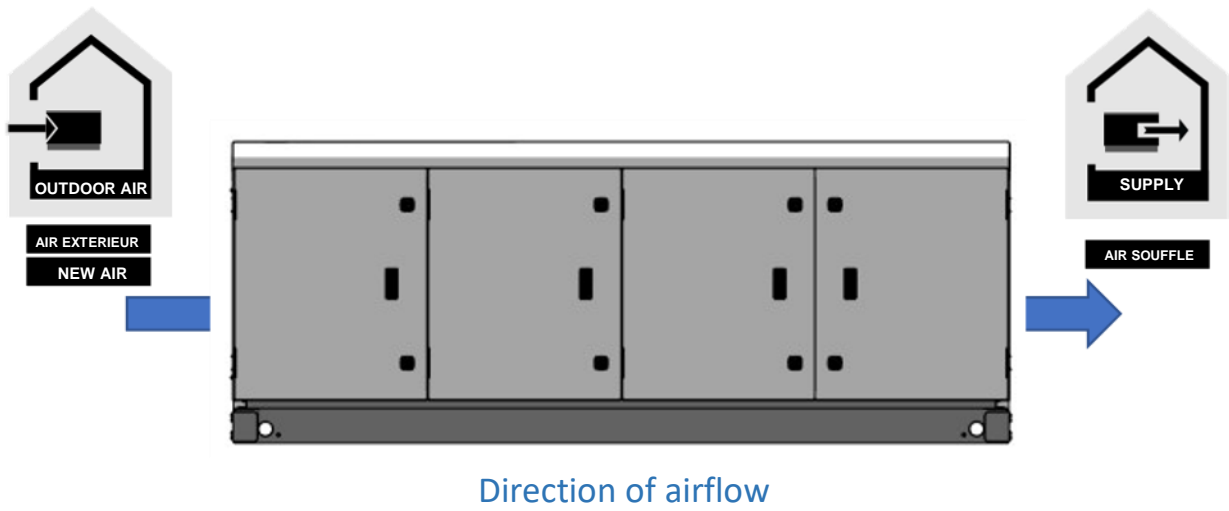
Stickers are placed next to each air flow to determine the direction of the air flow.

Single Flow

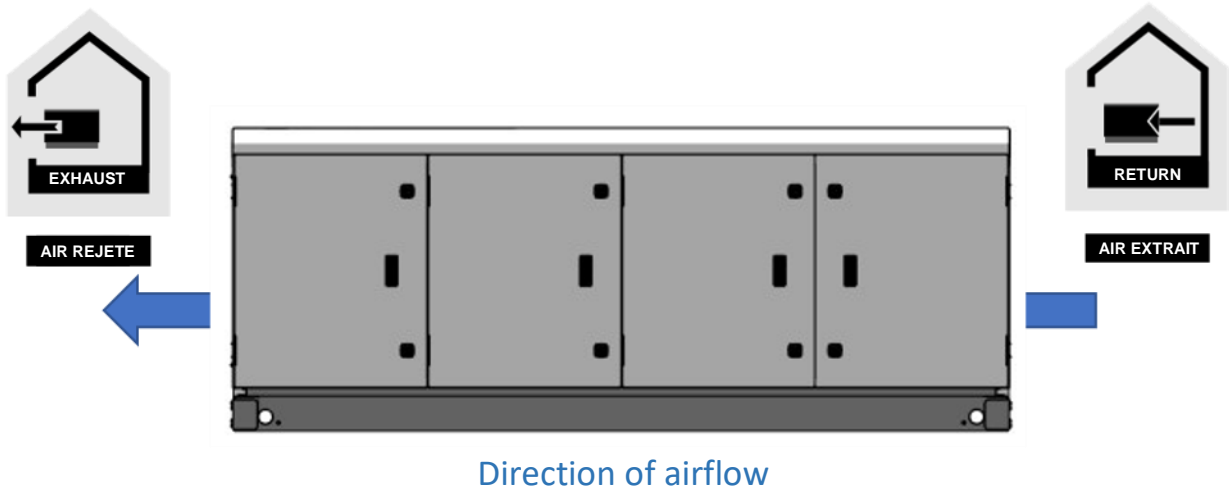
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CASE 1:



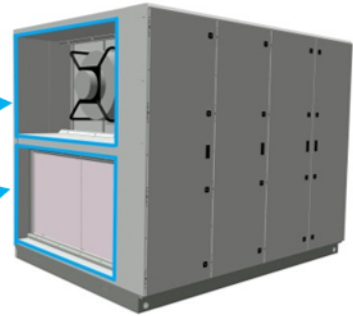
CASE 2:



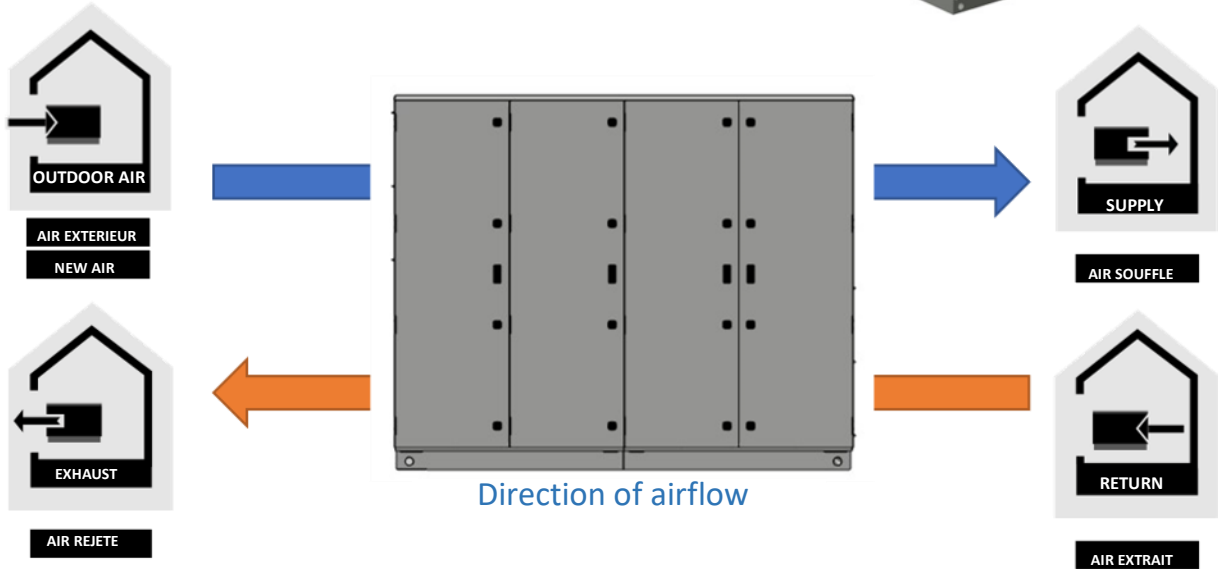
3. Double-flow unit

Double flow

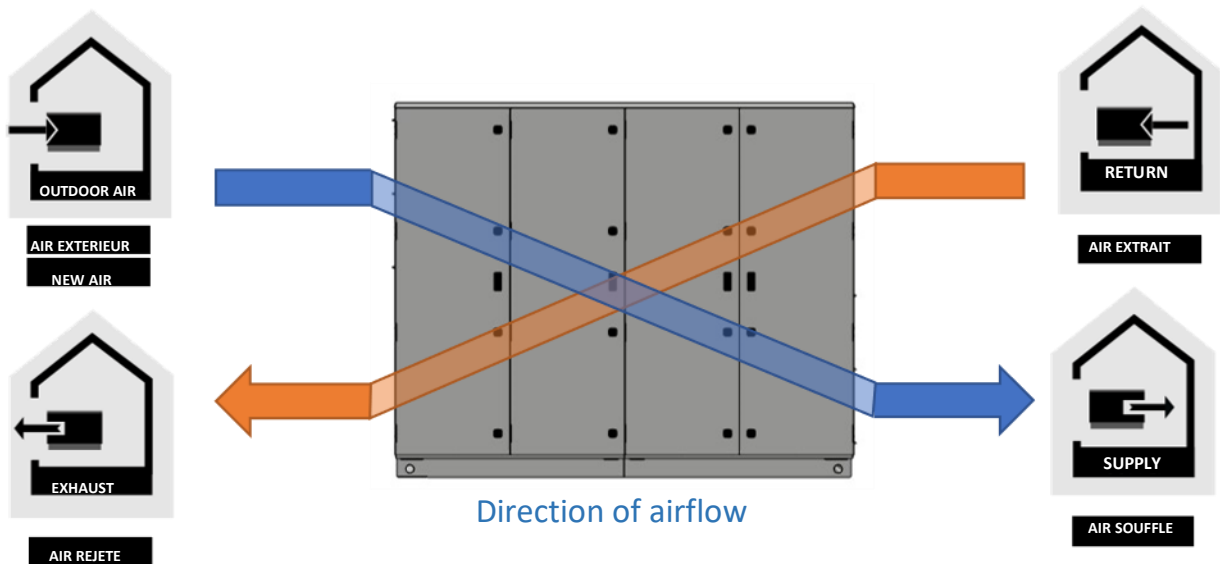
2



CASE 1:



CASE 2:



IV. Transport and Handling

A. Packaging

The unit is shrink-wrapped on wood supports

B. Reception

The unit can be delivered assembled or in separate parts.

Upon receipt of the equipment, it is essential to check the conformity of the delivery with the details on the carrier's delivery note. In accordance with Article 133-3 of the French Commercial Code, upon receipt of the package, the recipient is solely responsible for checking the condition of the goods. Any visible damage to the boxes or packaging must be immediately noted as a reservation on the carrier's delivery note before it is signed. The observations "subject to reservations" and "subject to reservations pending unpacking" have no legal value.

The damage noted must be confirmed by registered letter to the carrier within 2 working days. A copy of this letter must be sent to the manufacturer.

The warranty cannot cover any damage unless this procedure is followed.

C. Handling

Handling operations must be carried out by qualified personnel.

All maintenance operations must be carried out in compliance with the applicable legislation and regulations.

Only the base of the unit may be handled.

No weight should be exerted on the roof of the unit:

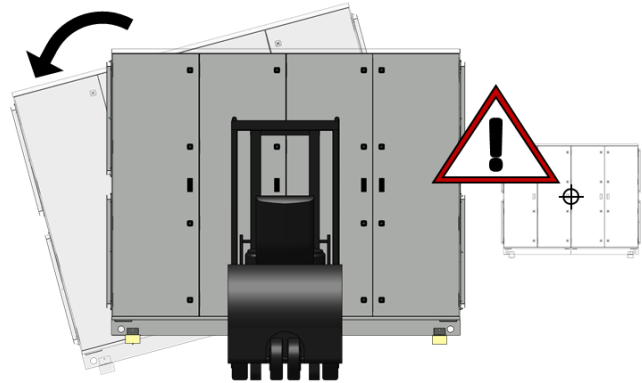
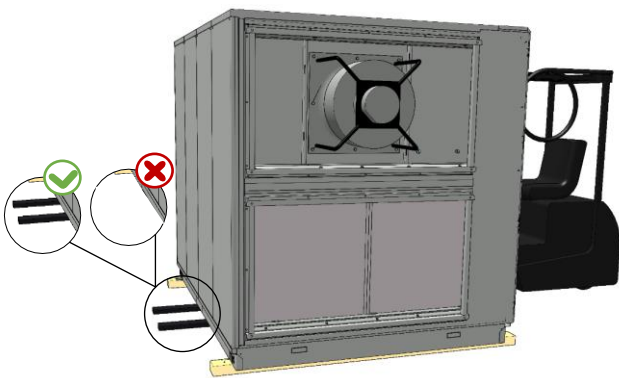
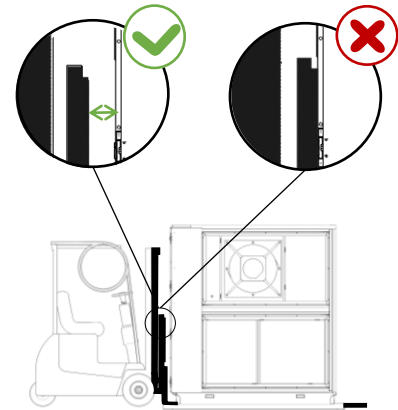
**DO NOT WALK ON THE ROOF OF THE UNIT
DO NOT PLACE ANYTHING ON THE ROOF OF THE UNIT
IT IS STRICTLY FORBIDDEN TO INSTALL ANOTHER UNIT ON THE ROOF OF THE UNIT.**

1. Forklift truck

The air handling unit can be moved using a forklift truck. The unit must be positioned correctly on the forks of the truck and the forks must extend beyond the opposite side of the unit. The centre of gravity of the unit must be taken into account for the purpose of handling in order to prevent it from tipping over. This information is shown on the customer plan.

Comply with the carrying capacity of the forklift or pallet truck. To avoid any damage, the unit must never come into contact with the mast of the forklift truck.

Make sure that the various accessories protruding from the unit are not damaged.



2. Hoists and slings

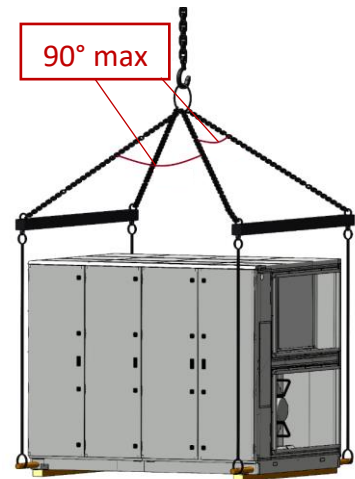
The air handling unit must be lifted using slings, which are chosen according to the weight of the unit. The slings must be well positioned and never come into contact with the unit. To achieve this, **spacer bars** must be used. Make sure they are large enough and positioned correctly.

No weight should be exerted on the roof of the unit:

DO NOT WALK ON THE ROOF OF THE UNIT

Sling bars must be positioned at the points provided for this purpose on the frame of the unit and must be sufficiently dimensioned (length and diameter).

The hoist used to lift the unit must be capable of lifting a load greater than the total weight of the air handling unit.



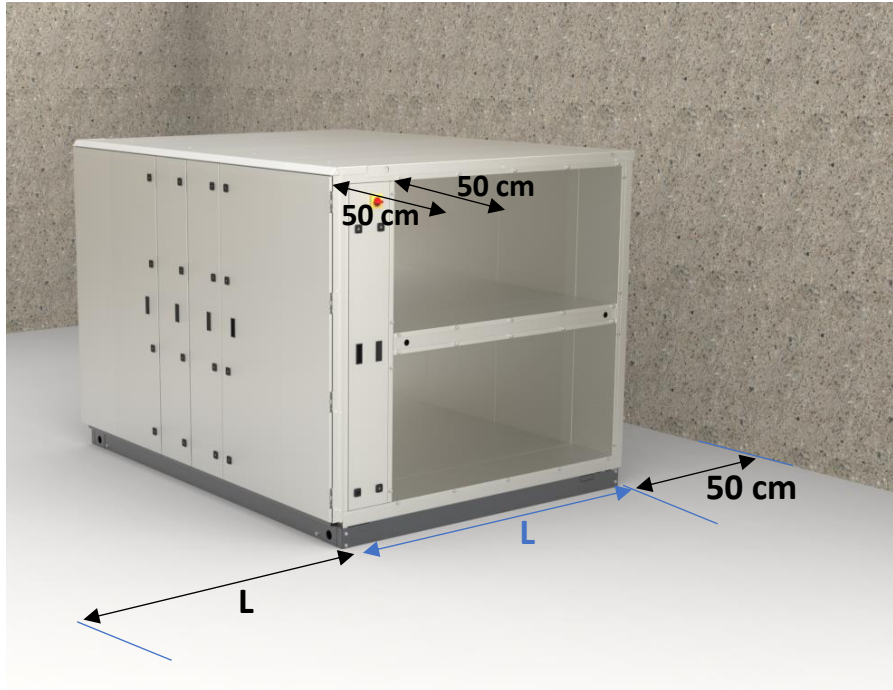
D. Location

The structure on which the unit is installed must be able to bear the weight of the unit. The weight of the unit does not take into account the additional weight of the fluid contained in the batteries and humidifiers.

The unit must be installed on a flat surface to ensure that the fluids can flow through the batteries and the condensates are drained off. And to ensure correct connection between the blocks, if applicable.

The unit must not be accessible to unauthorised persons and must be safely accessible to authorised persons.

Adequate access must be provided for assembly, start-up, maintenance and repair operations:



The regulations in force and the climatic conditions at the installation site must be taken into account if the unit is installed outdoors. In this case, the MCX unit must be attached to the ground so that it can withstand the elements.

Failure to comply with these criteria will invalidate our warranty.

E. Storage precautions

If the unit is not to be installed immediately, it is advisable to store it in its packaging and in a clean place that must be protected from the elements.

V. Assembly

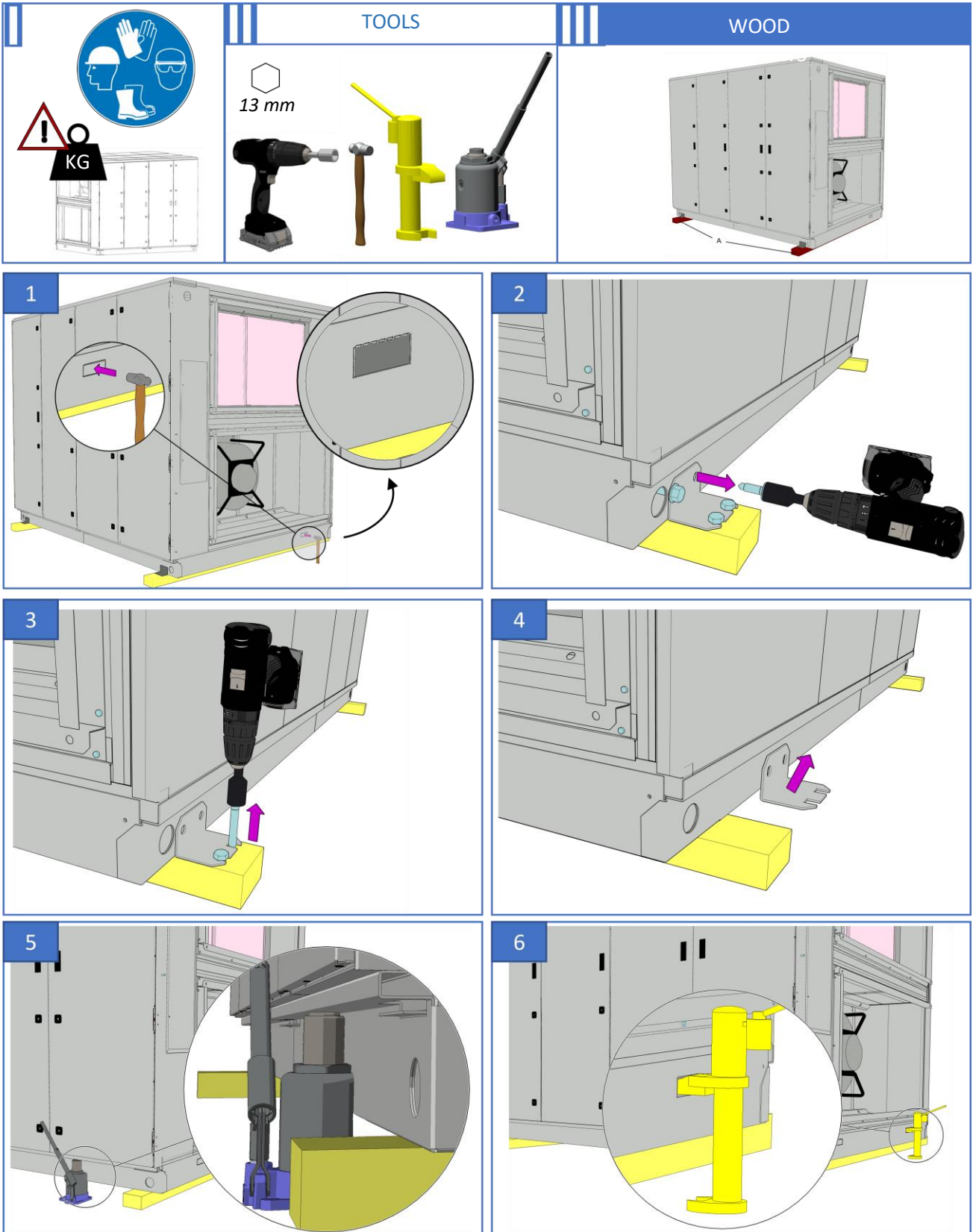


**The installation must be performed by qualified personnel, who have been trained in air handling techniques, in compliance with all the instructions given in this manual and in accordance with the applicable regulations in the country of destination.
Refer to the instructions for interventions described above (II.D)**

A. Removing the wood supports

The wood supports under the unit must be removed at the unit's permanent installation location.

1. Hydraulic jacks



	<p style="text-align: center;">TOOLS</p> <p style="text-align: center;">13 mm</p>	<p style="text-align: center;">WOOD</p>
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7



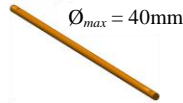

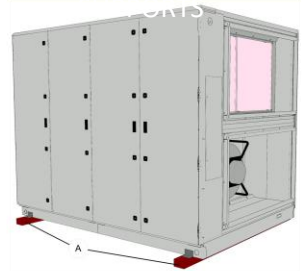
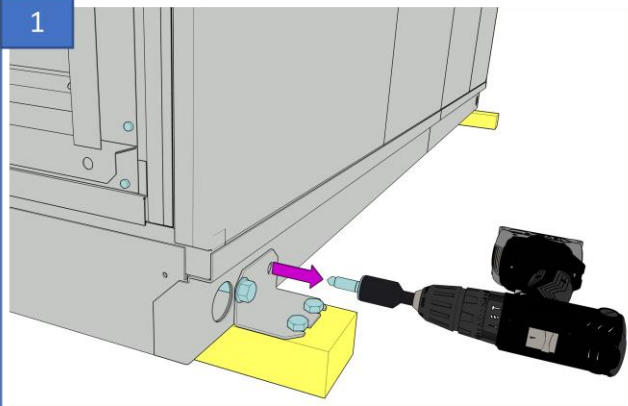
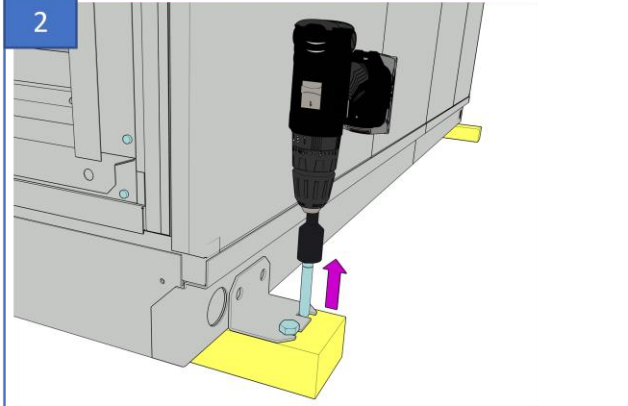
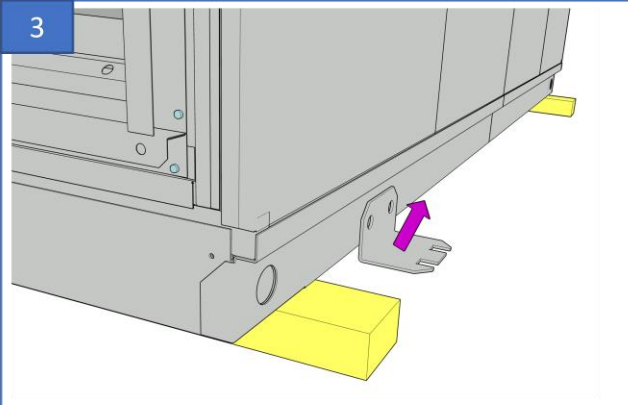
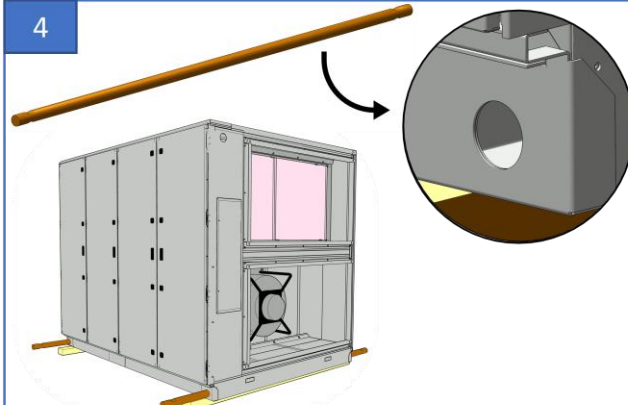
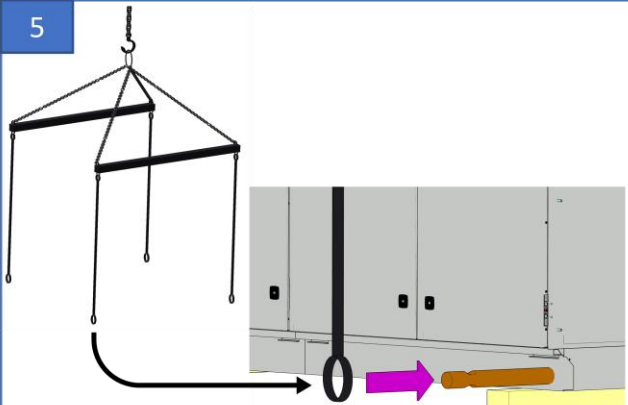
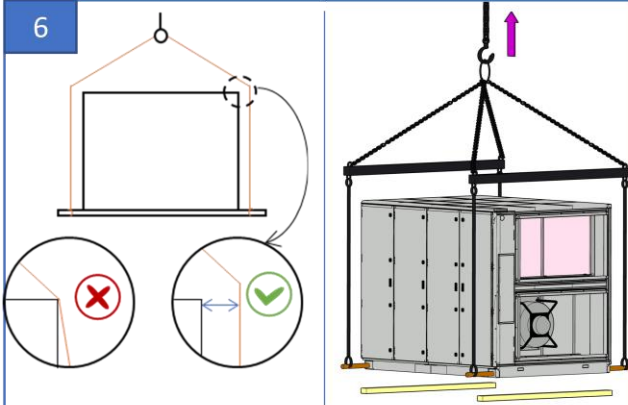
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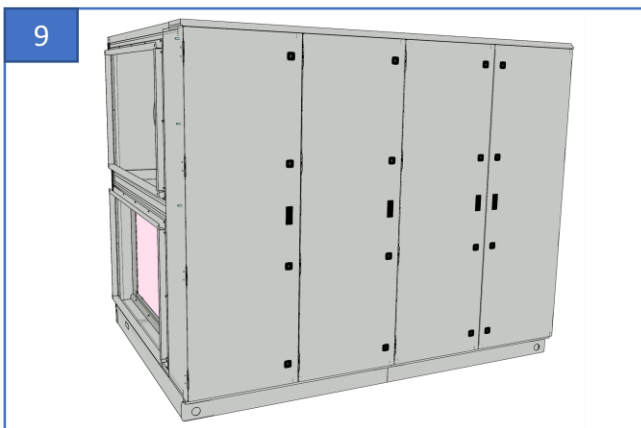
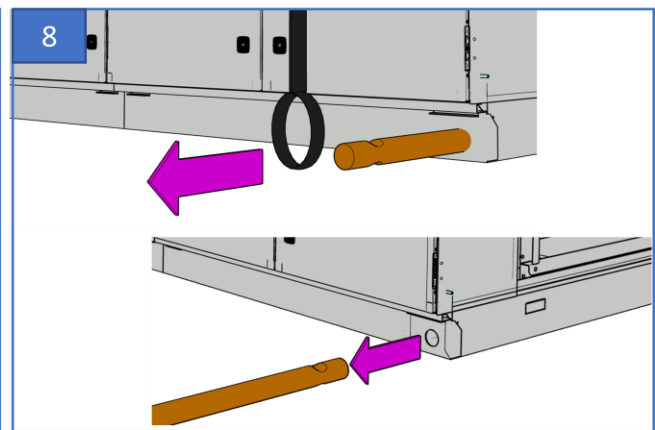
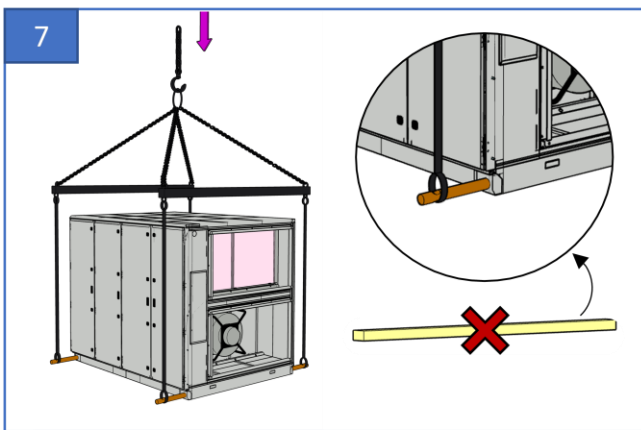
10

11

12

2. Hoists and slings

	TOOLS   	WOOD 	
1 	2 	3 	4 
5 	6 		

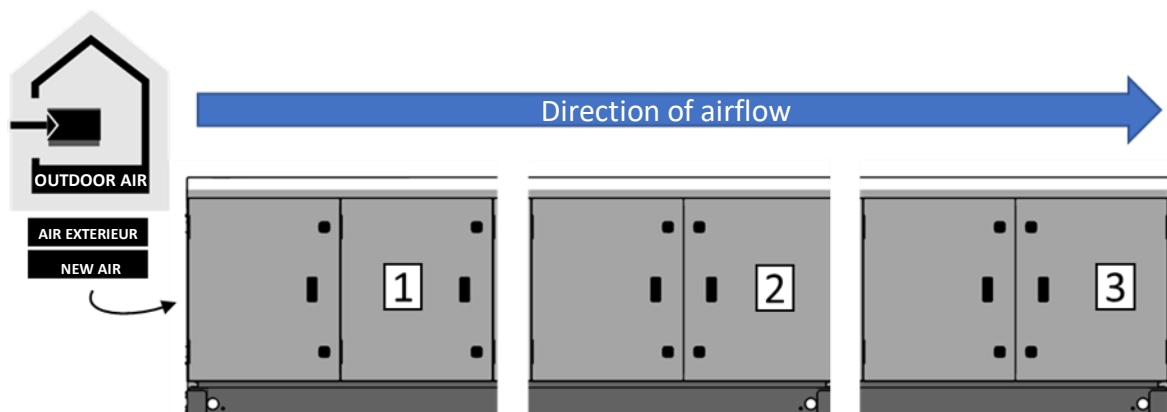


B. Block assembly

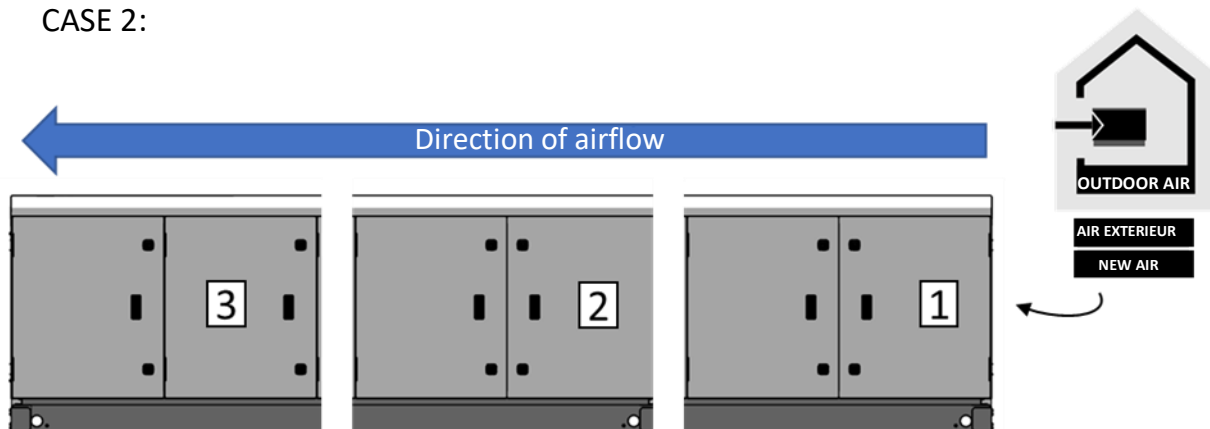
The floor must be perfectly flat and the unit positioned horizontally to allow the blocks to be connected together and to ensure leaktightness.

Position the blocks in the correct order using the stickers on each block and respecting the direction of the airflow.

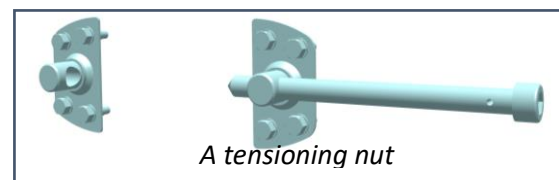
CASE 1:






CASE 2:




Connect two blocks. There are 4 tensioning nuts for 2 blocks. If necessary, repeat the operation with the other blocks.

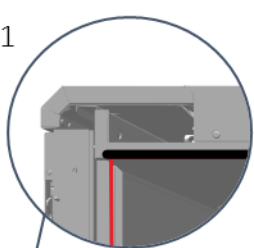
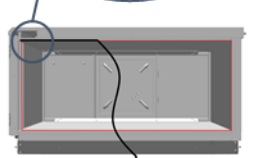


	<p style="text-align: center;">TOOLS</p>  <p style="text-align: center;">13 mm 10</p>	<p style="text-align: center;">CONNECTION BETWEEN BLOCKS</p>  <p style="text-align: center;">Block 1 Block 2</p>
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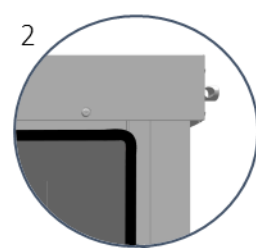
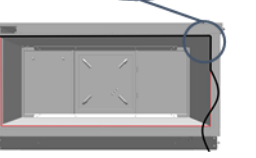
1 **Double flow** **OR** **Single flow**



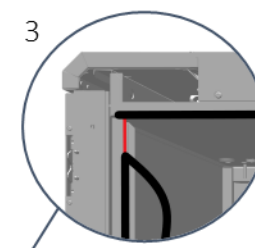
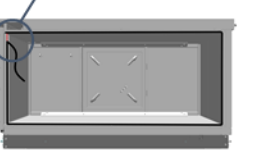
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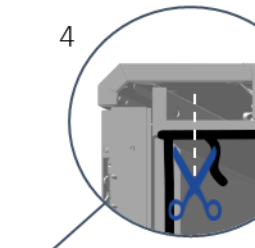
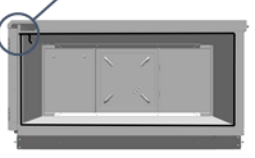
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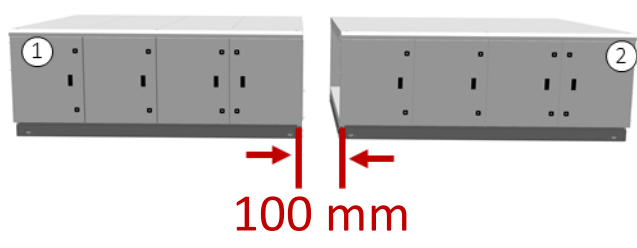
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4

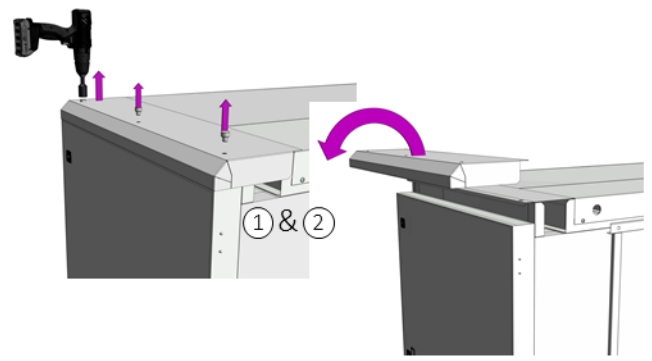






2



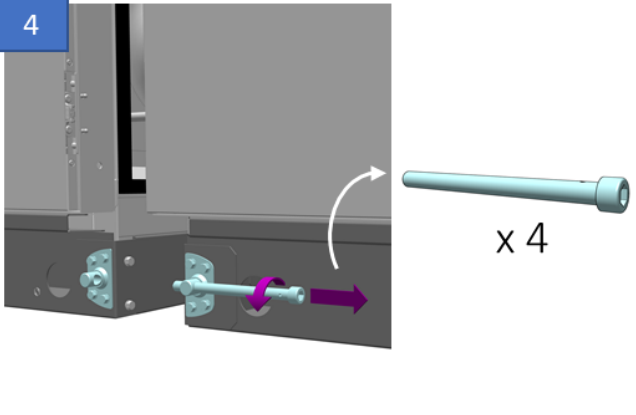
100 mm

3 **Single flow**

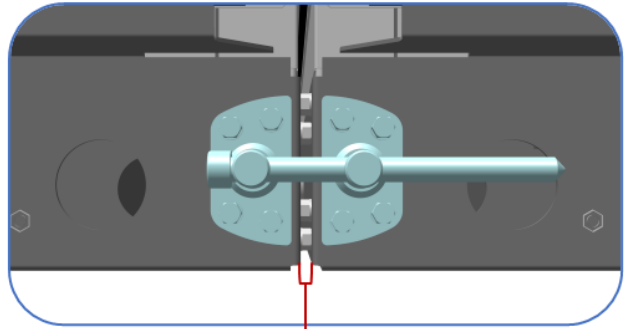


	<p style="text-align: center;">TOOLS</p>  <p style="text-align: center;">13 mm 10</p>	<p style="text-align: center;">CONNECTION BETWEEN BLOCKS</p>  <p style="text-align: center;">Block 1 Block 2</p>
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4

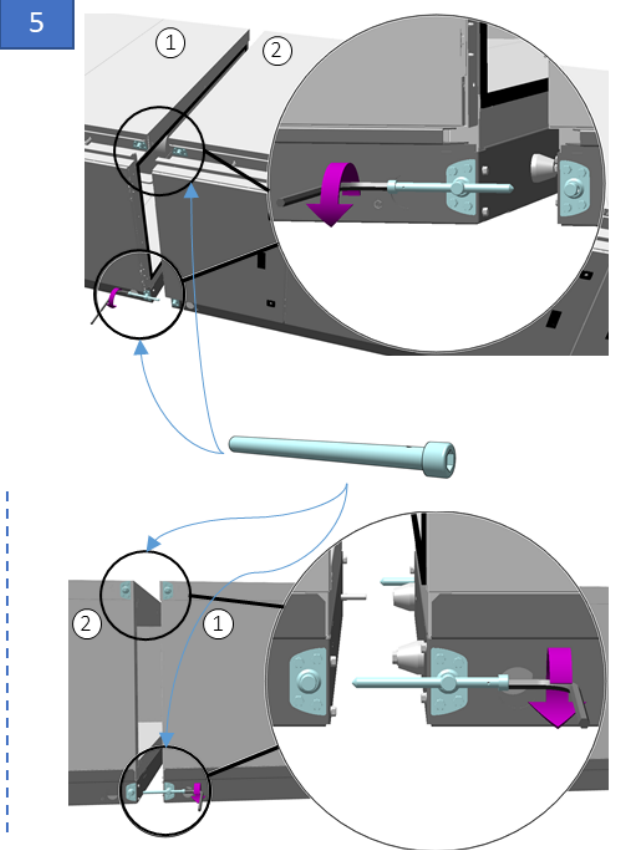


x 4

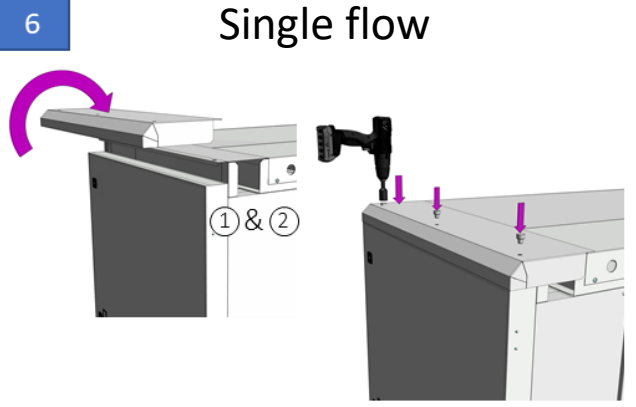


5 mm

5

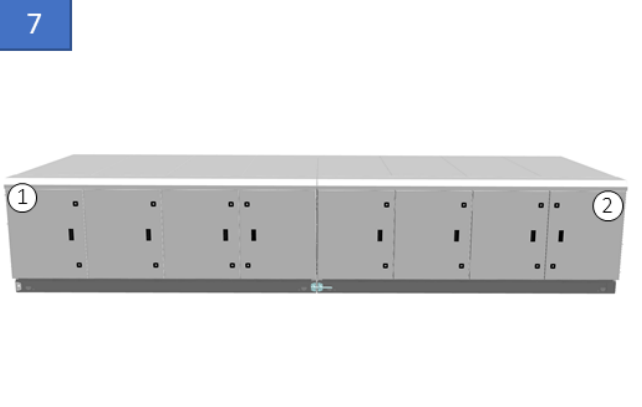


6 **Single flow**



① & ②

7

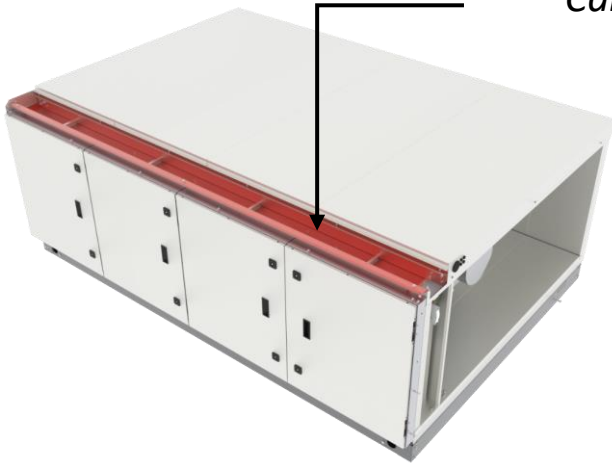


C. Tunnel

1. Technical panel

- **SINGLE FLOW**

To access the wiring harnesses, remove the roof panel.




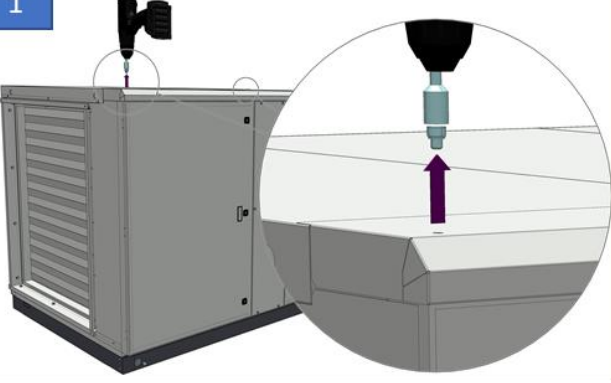
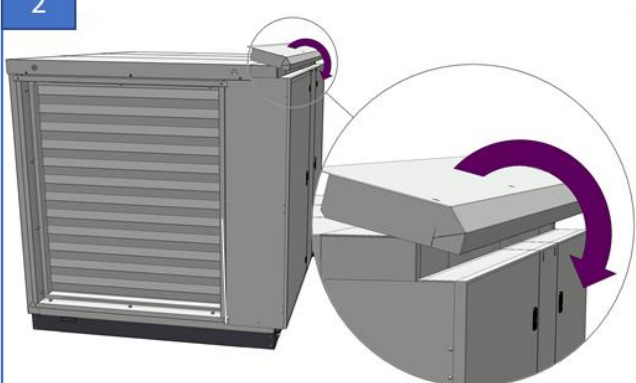






- **DOUBLE FLOW**

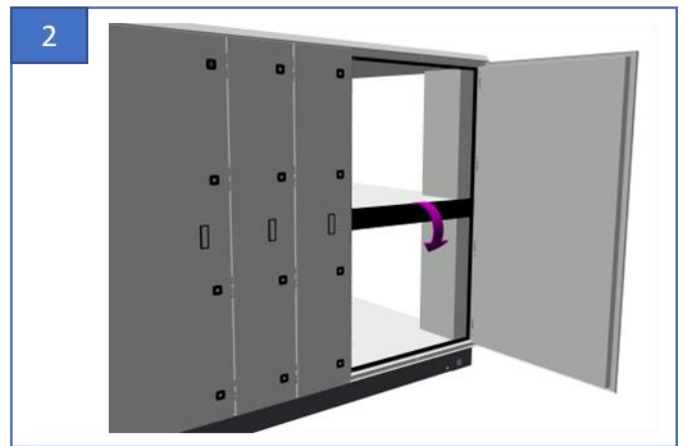
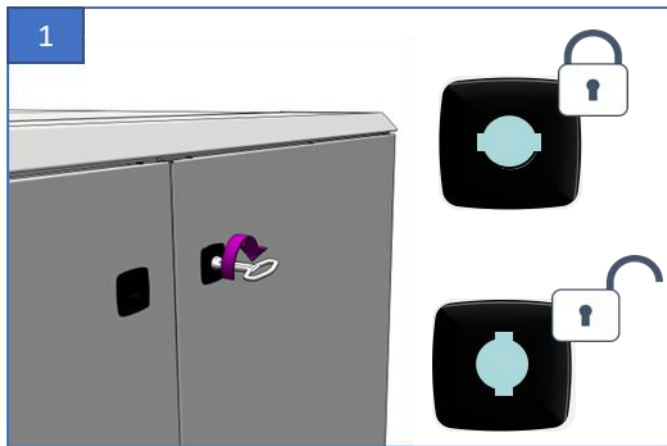
To access the wiring harnesses, remove the seal between each doorway.



Cable routing

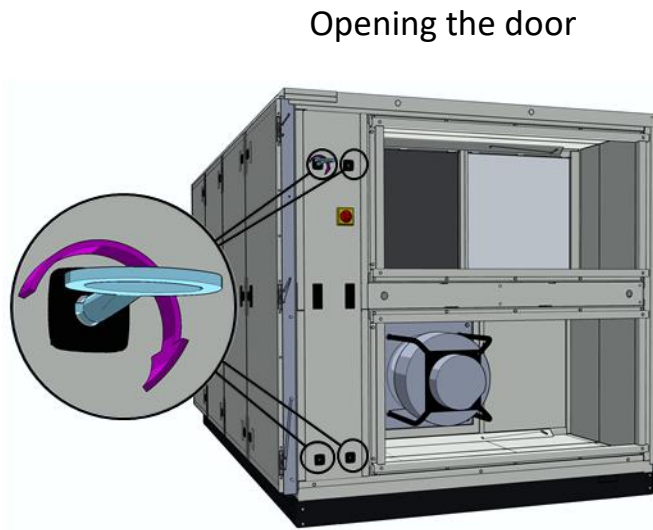
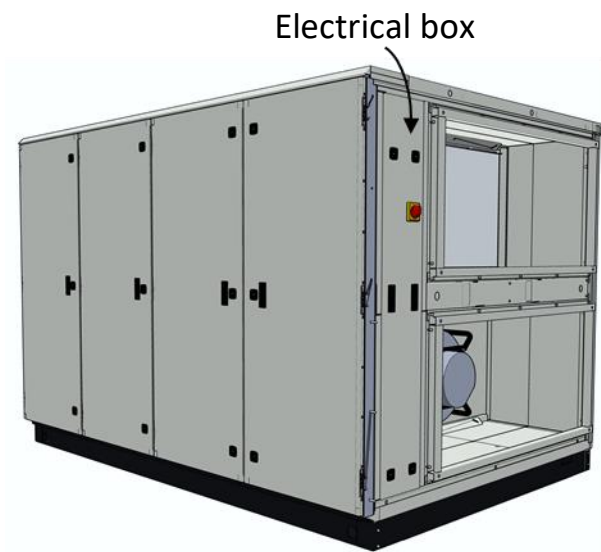
	TOOLS	TECHNICAL PANEL
	 <p>13 mm</p>	<p>Single-flow unit</p> 
<p>1</p> 	<p>2</p> 	<p>3</p> 

	TOOLS	TECHNICAL PANEL
		<p><i>Double-flow unit</i></p> 



2. Electrical box

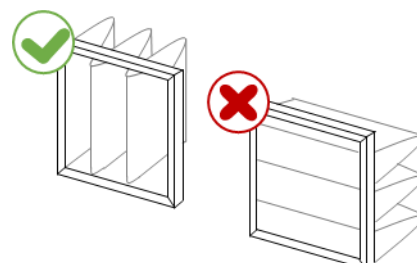
The electrical box provides access to the control system, if there is one, and to the isolating switch in order to be able to connect the unit to the mains.






D. Filters

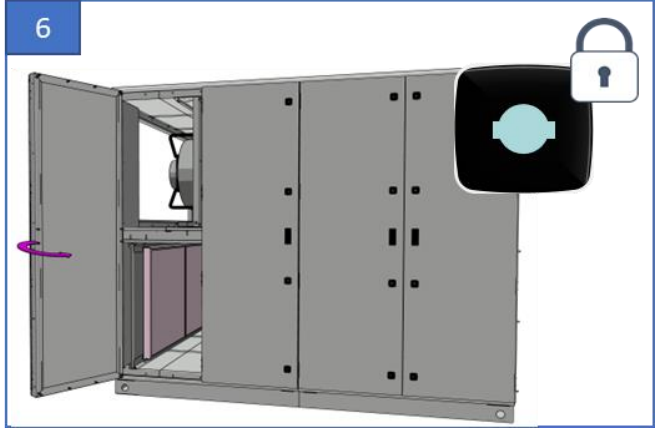
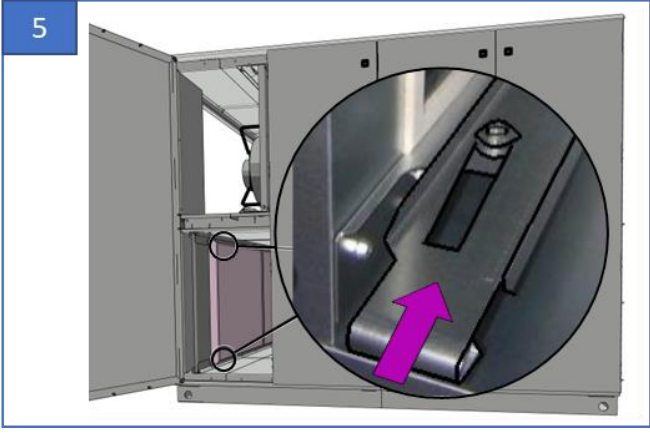
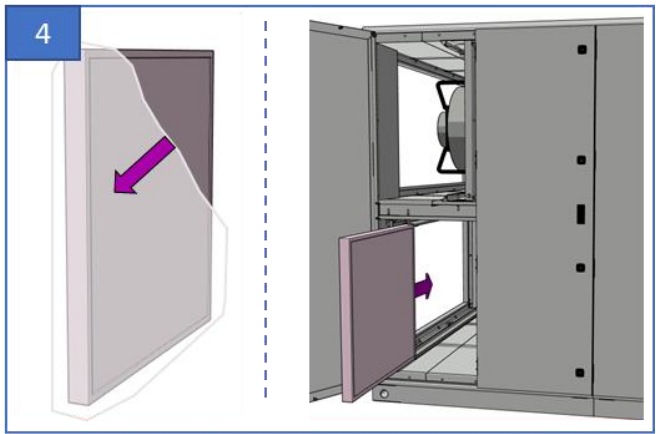
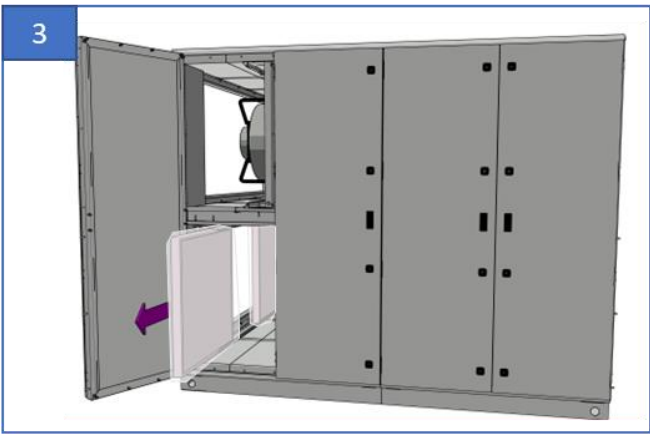
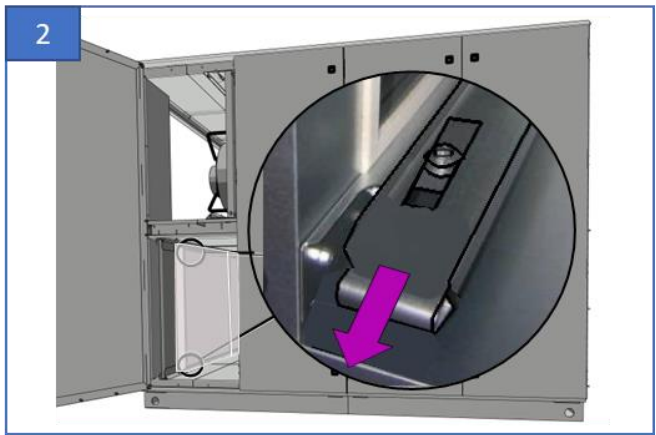
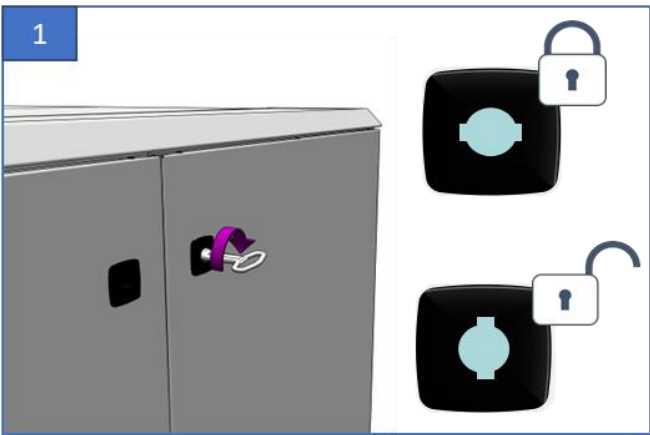
Most of the filters are already in their final position on the unit. Remove the protective packaging before starting up the unit. Please ensure that the direction of the airflow indicated on the filter corresponds to the direction of the airflow through the unit.

Please also note the direction of the filter: in the case of pocket or rigid filters, make sure that the pockets are vertical whenever possible.



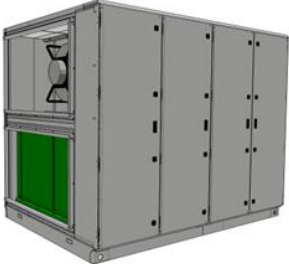
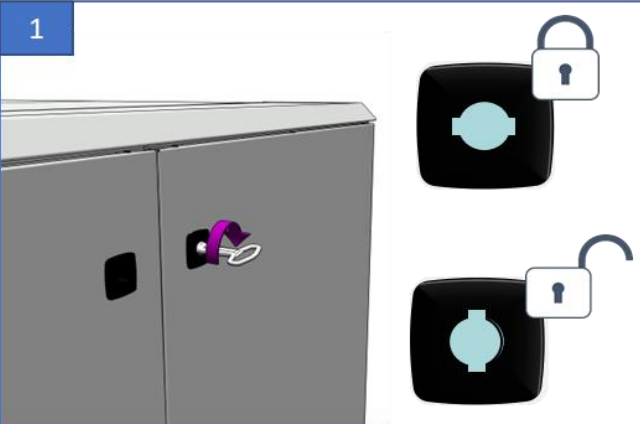
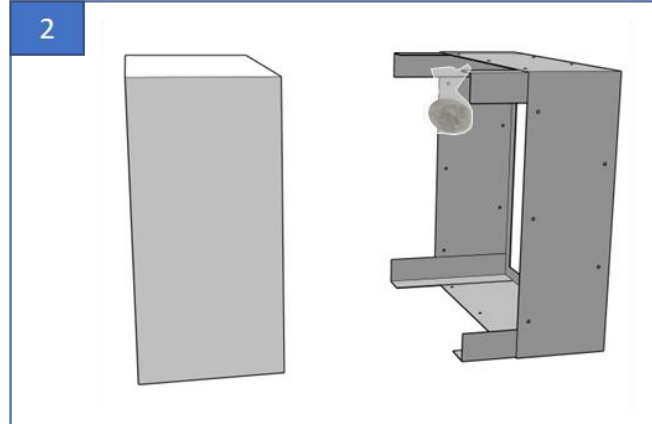
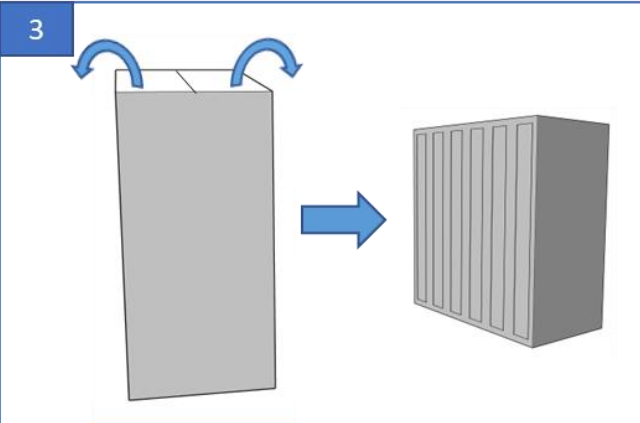
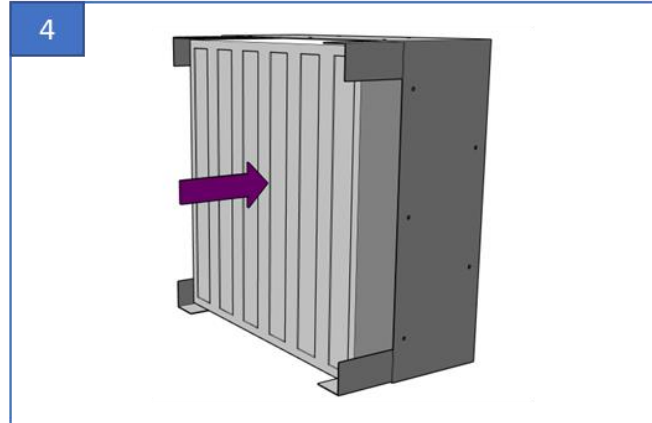
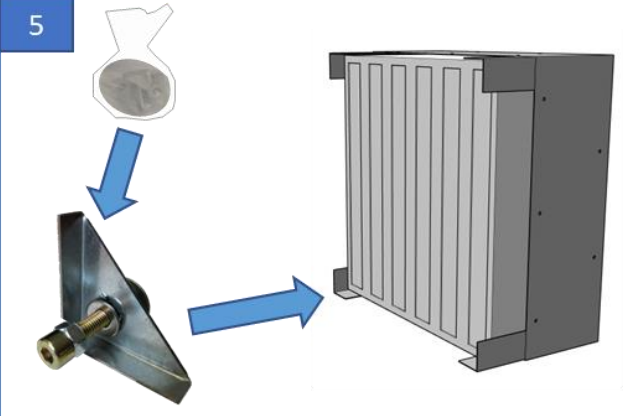
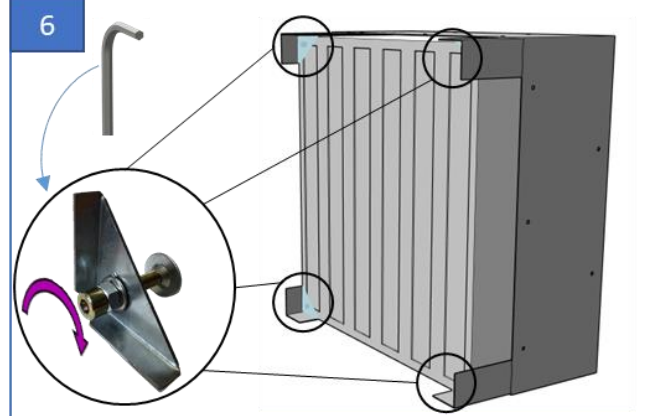


Preferred position of filters in the unit

	TOOLS	FILTER
		



In the case of absolute filters (HEPA terminal filters: E10 - E12 - H13- H14), assembly differs and the filters will be housed in a box next to their final location.

	TOOLS	ABSOLUTE FILTER
		
<p>1</p> 	<p>2</p> 	
<p>3</p> 	<p>4</p> 	
<p>5</p> 	<p>6</p> 	

VI. Connections



The connections must be performed by qualified personnel, who have been trained in air handling techniques, in compliance with all the instructions given in this manual and in accordance with the applicable regulations in the country of destination.

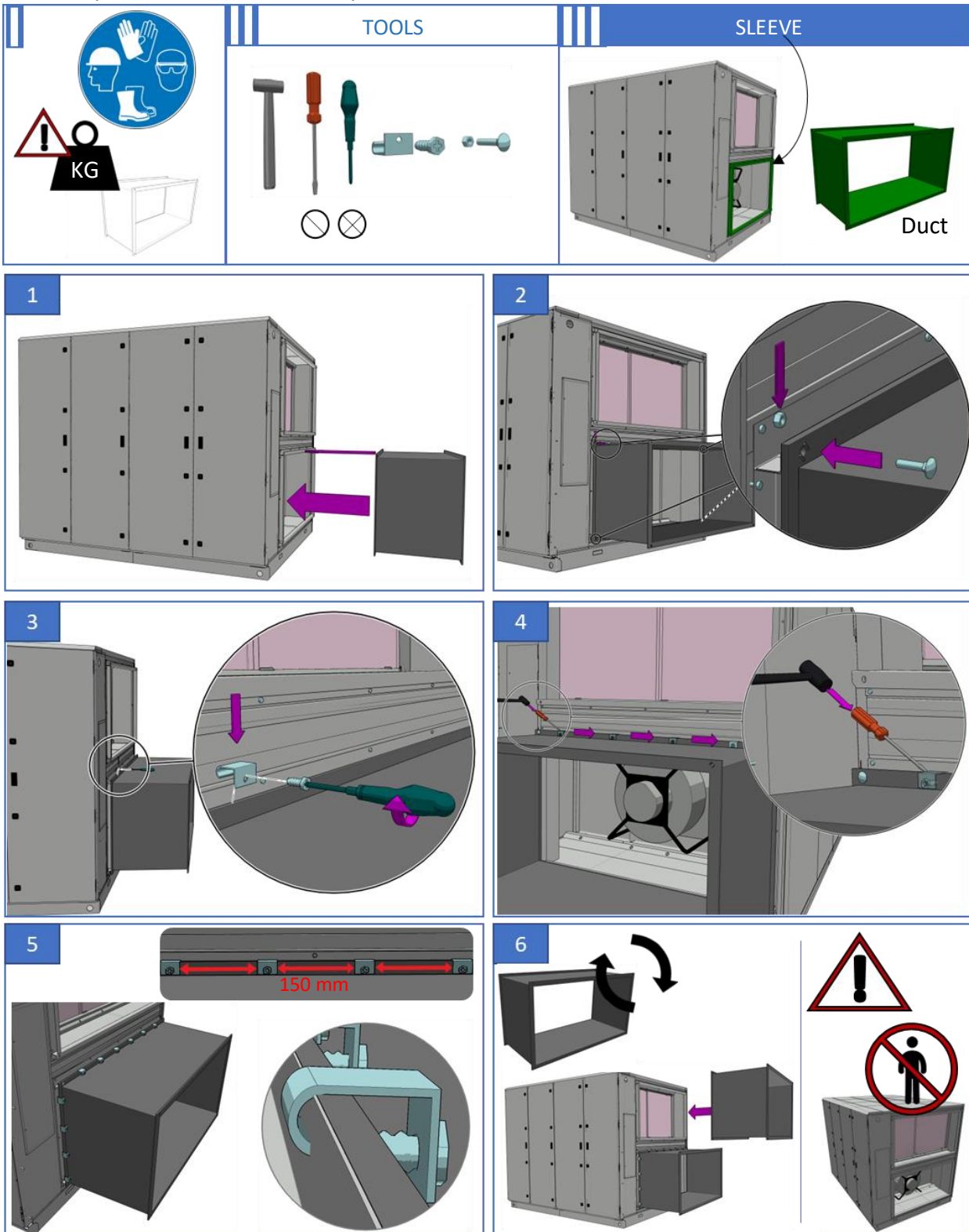
In the European Union, the installer will have to establish: The Declaration of Conformity and affix the CE marking to the installation.

Check that the electrical connections of outdoor devices are watertight.

Refer to the instructions for interventions described above (II.D)

A. Air connection (duct connection)

No connection should exert mechanical stress on the unit or hinder the opening of the machine's various access points. The sleeve provides the link between the unit and the duct.



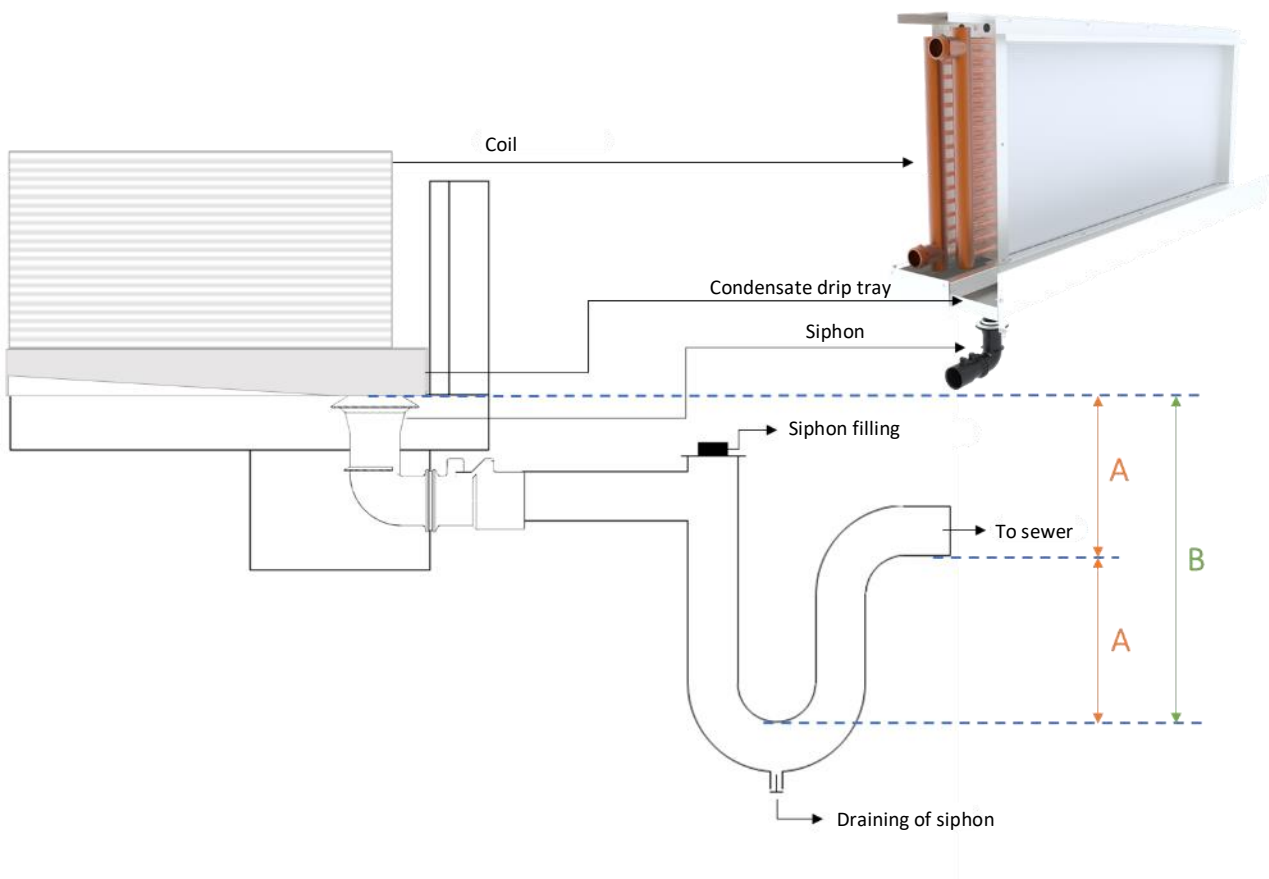
- B. Hydraulic connection
 - 1. Cooling/heating coil

a) *Condensate drain siphon*

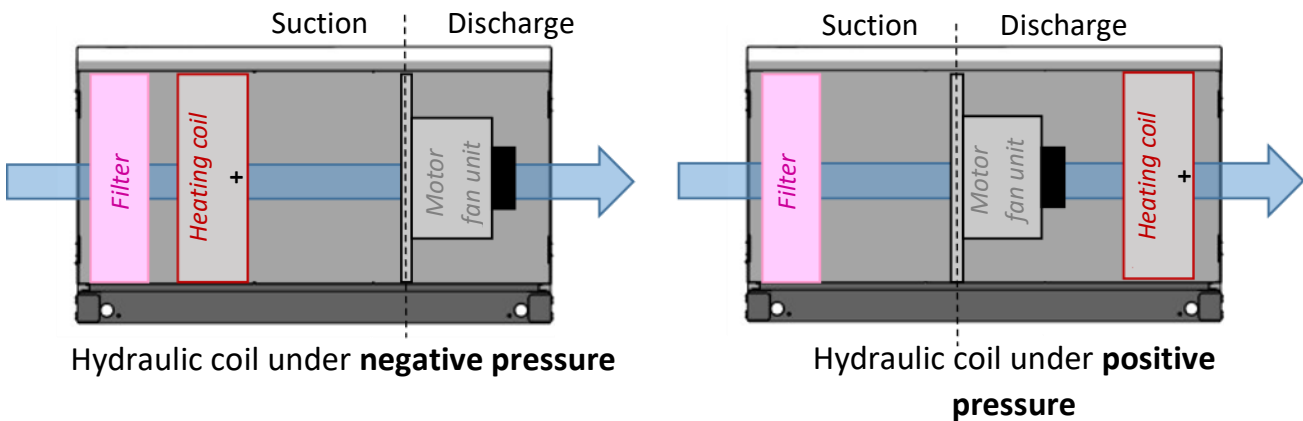


The unit is equipped with a condensate drain, which must be connected to the drains using a siphon. Direct connection to the waste water network is not permitted.

To allow the condensates to drain away, the height of the siphon must be calculated according to the negative or positive pressure on the component.



The hydraulic coil will be subject to negative pressure or positive pressure depending on the position of the fan.



Assembly under negative pressure

$$H \text{ [mm CE]} = \frac{\text{Negative pressure [Pa]}}{10}$$

$$A = H$$

$$B = 2H$$

Assembly under positive pressure

$$H \text{ [mm CE]} = \frac{\text{Positive pressure [Pa]}}{10}$$

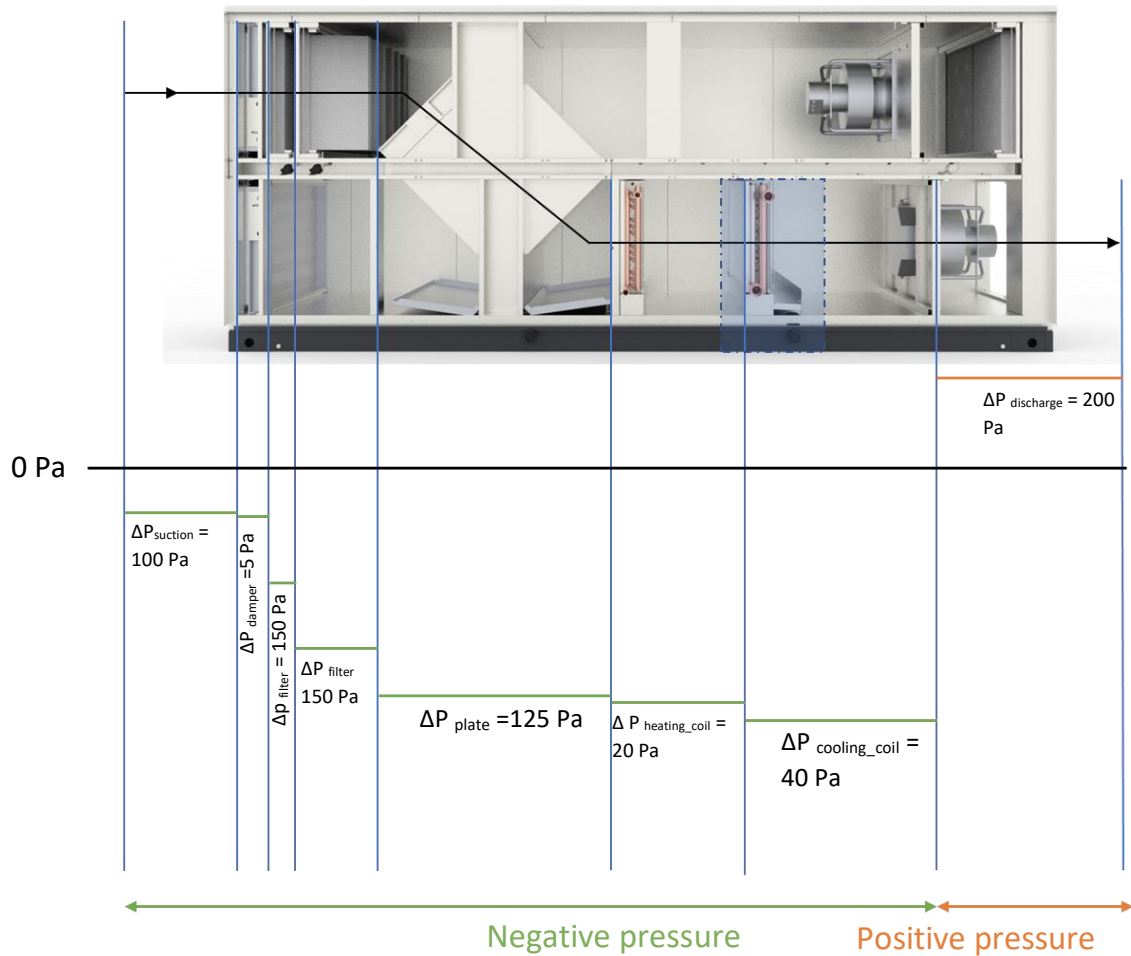
$$A = H$$

$$B = 2H$$

Determining the pressure of a component:

- Look at the direction of the airflow (watch out for crossed flows in the case of a plate heat exchanger)
- Check whether the hydraulic coil is subject to negative or positive pressure in relation to the fan
- Add up the pressure losses for each component (indicated on the data sheets) up to the hydraulic coil.
- Calculate the permissible height of the siphon

Example: Calculation of the height of the cooling coil siphon



- The cooling coil is subject to negative pressure in relation to the fan (negative pressure from suction to fan)

- Calculation of the negative pressure up to the cooling coil:

$$\text{Negative pressure} = \Delta p_{\text{suction}} + \Delta p_{\text{damper}} + \Delta p_{\text{filter}} + \Delta p_{\text{filter}} + \Delta p_{\text{plate}} + \Delta p_{\text{heating coil}} + \Delta p_{\text{cooling coil}}$$

$$= 100 + 5 + 150 + 150 + 125 + 20 + 40$$

$$= 590 \text{ Pa}$$

(For filters, the value of the final pressure losses must be used)

- The minimum heights to be respected for the siphon can be calculated:

$$H = \frac{590}{10} = 59 \text{ mmCE}$$

This gives the following heights A and B (shown on the diagram), which must be respected:

$$A = 59 \text{ mm}$$

$$B = 118 \text{ mm}$$

This value is valid only for this component and in this specific configuration (location of components, direction of airflow, type of components)

Observe the direction of the hydraulic connection. Make sure that the condensates are properly drained.

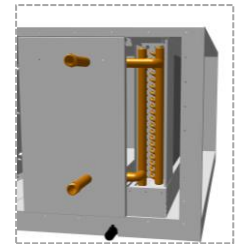
A siphon must be connected to each condensate drain. It is not permitted to connect several drain pipes to the same siphon. Observe the outlet diameter of the drain elbow; do not use a reducer.

To ensure that the condensates drain freely through the siphon into the drainage system, the drainage pipe should have a slight slope of approximately 5/1000th.

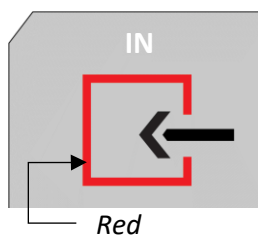
The manufacturer may not be held responsible for frost damage caused to a coil.

b) Connection to the hydraulic network

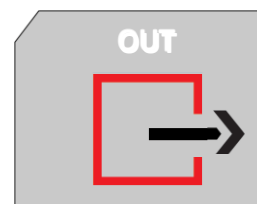
The hydraulic coil must be connected to your hydraulic network. The coil is fitted with a fluid inlet and a fluid outlet, which must be connected. **Make sure you observe the direction of the fluid (inlet/outlet) and use the right type of coil (heating/cooling).**



Heating coil: Hot fluid enters (**IN**) the unit and exits it (**OUT**).
It heats the air.

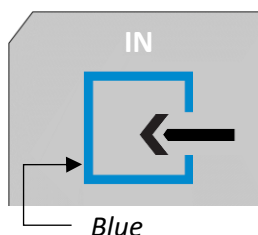


Fluid enters via the heating coil manifold

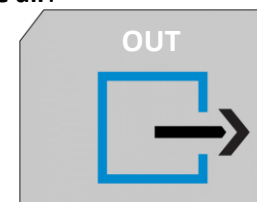


Fluid exits via the heating coil manifold

Cooling coil: A cold fluid enters (**IN**) the unit and exits it (**OUT**).
It cools the air.

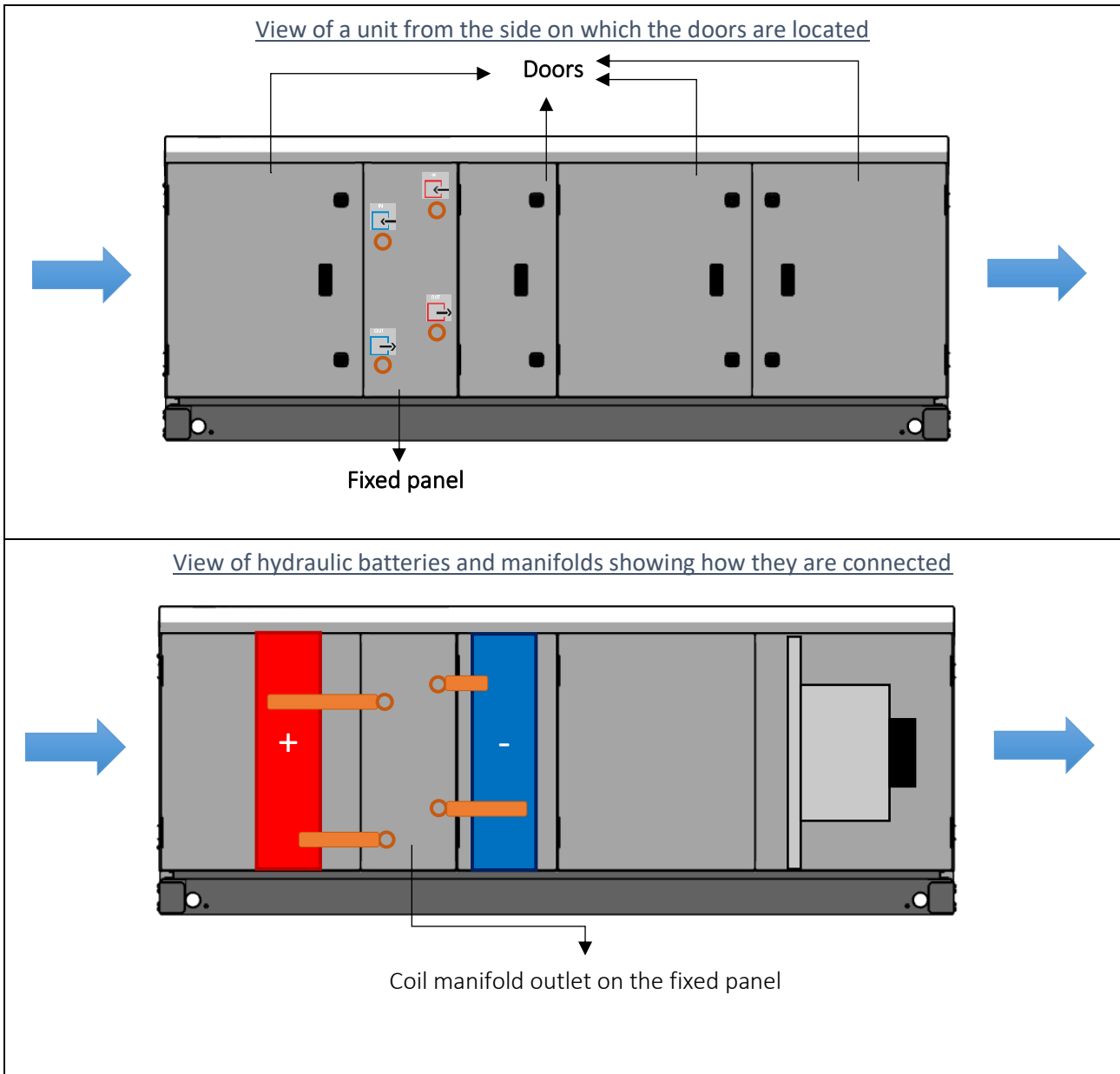


Fluid enters via the cooling coil manifold



Fluid exits via the cooling coil manifold

The hydraulic coil manifold outlet is located on a fixed panel close to the coil.



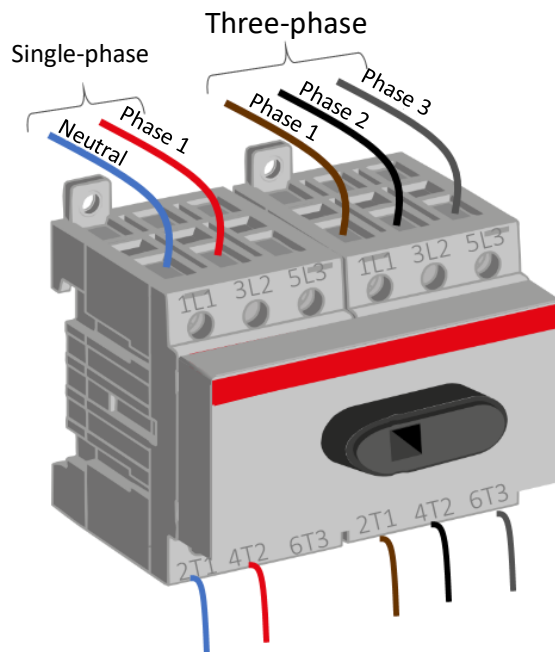
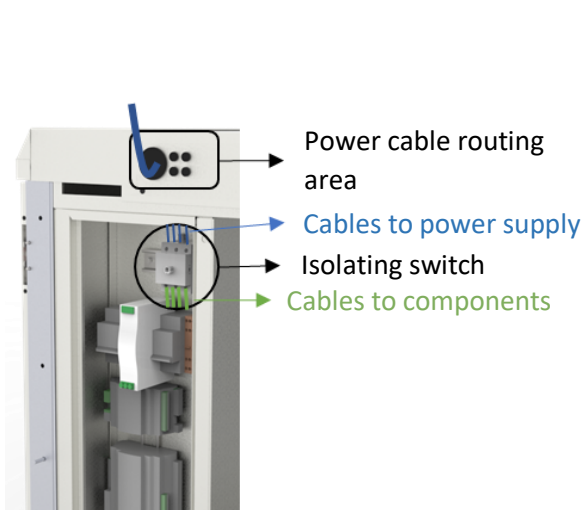
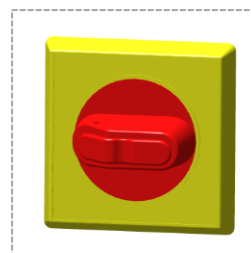
The manifold outlets are all threaded. When tightening the coil manifolds, use **a wrench** to avoid transmitting the tightening torque to the manifold and damaging it.

Please ensure that the **piping does not hamper the removal of removable elements** such as a removable tray, a drip separator, and the opening of doors.

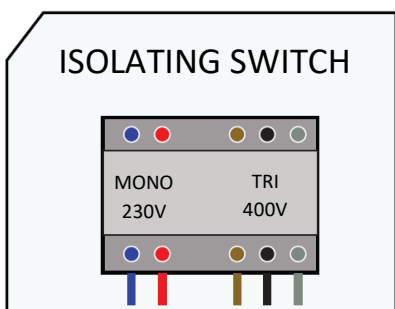
C. Electrical connection

1. Connection to the electricity network

An isolating switch in the electrical box connects the unit to the mains. The electrical connection is the responsibility of the customer. The electrical connection must be carried out by qualified personnel under safe conditions and in compliance with the applicable regulations and our recommendations. The electrical connection of outdoor units must be watertight.



The isolating switch will have a rating (nominal current) of 25 A, 50 A or 100 A, which will have an impact on the minimum cross-section of the wires to be chosen. These values are given for a typical configuration; the calculation of the minimum cross-section of the electrical wires must be checked for any other configuration.



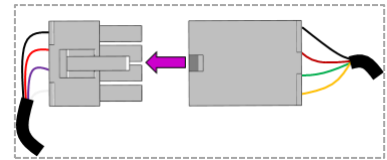
Nominal current	Minimum cross-section of electrical wires
25 A	6 mm ²
50 A	16 mm ²
100 A	25 mm ²

Typical configuration used to calculate minimum cable cross-section: Copper wire at a temperature of 20°C and a cable length of 80 m.

The electrical cable duct must be chosen according to the weather conditions at the location of the unit (indoor/outdoor, humidity, low temperatures, high temperatures, etc.). The duct must contain a green/yellow earthed conductor. The power cable must be fitted with an anti-pull and anti-twist mechanism, such as a cable gland. The leaktightness rating of the cable gland must be tailored to the purpose of the unit. The diameter of the cable gland must be selected taking into account the minimum cross-section of the electrical wires.

2. Connecting the components

The electrical connection must be carried out by qualified personnel. Electrical components must be earthed in accordance with the supplier's instructions and the applicable standards.



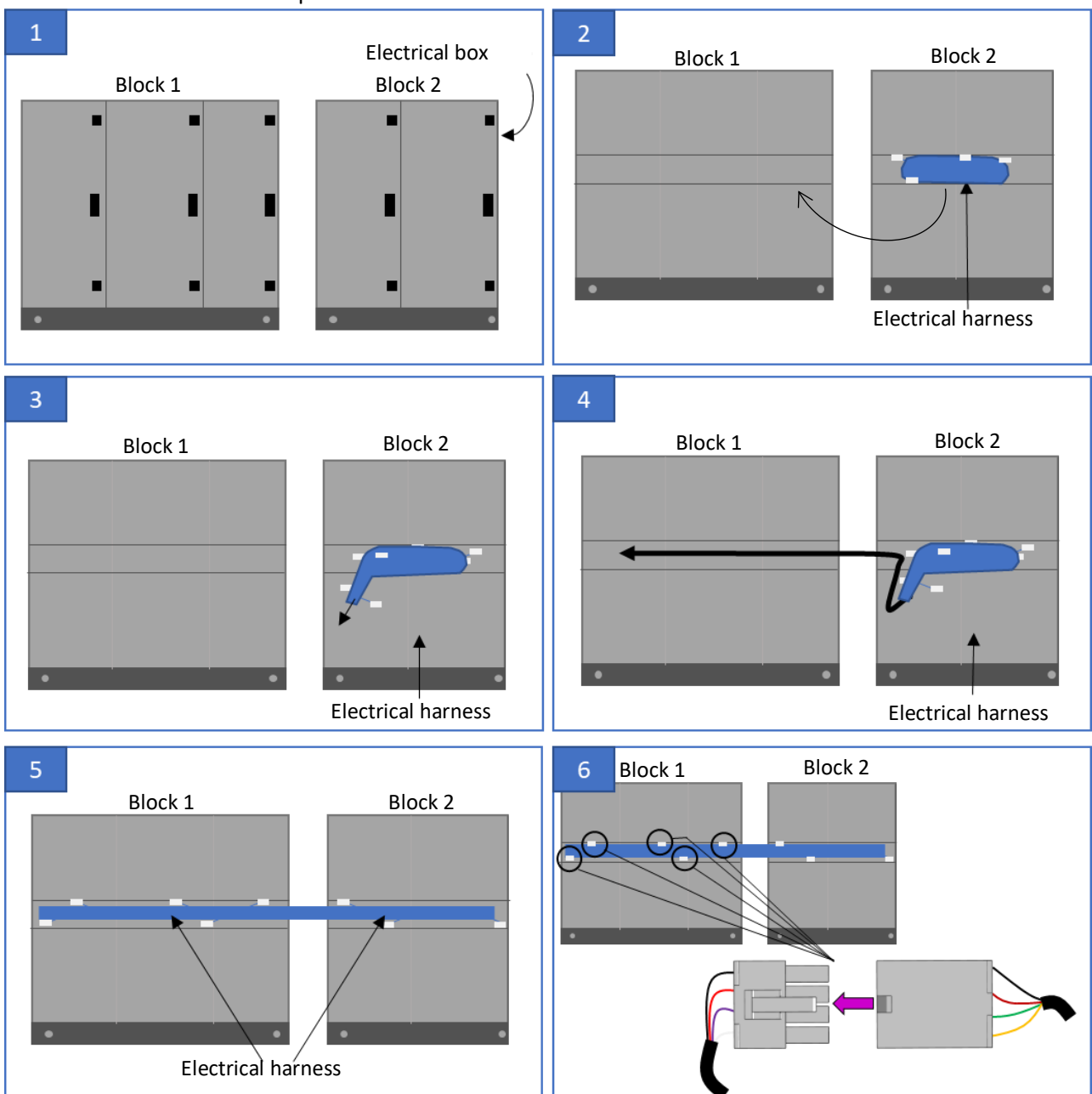
a) With control system

(1) Single-block unit: a single block

In the case of a single-block unit fitted with a control system: the components have been wired. **Please refer to the control manual.**

(2) Multi-block unit: several blocks

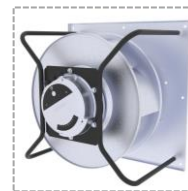
In the case of a multi-block unit delivered with the control system, rewiring is necessary. The electrical harnesses will have been grouped together in the block containing the electrical box. This harness is made up of several connectors. The harness must run through the other blocks and the electrical harness connectors must be connected to the component connectors.



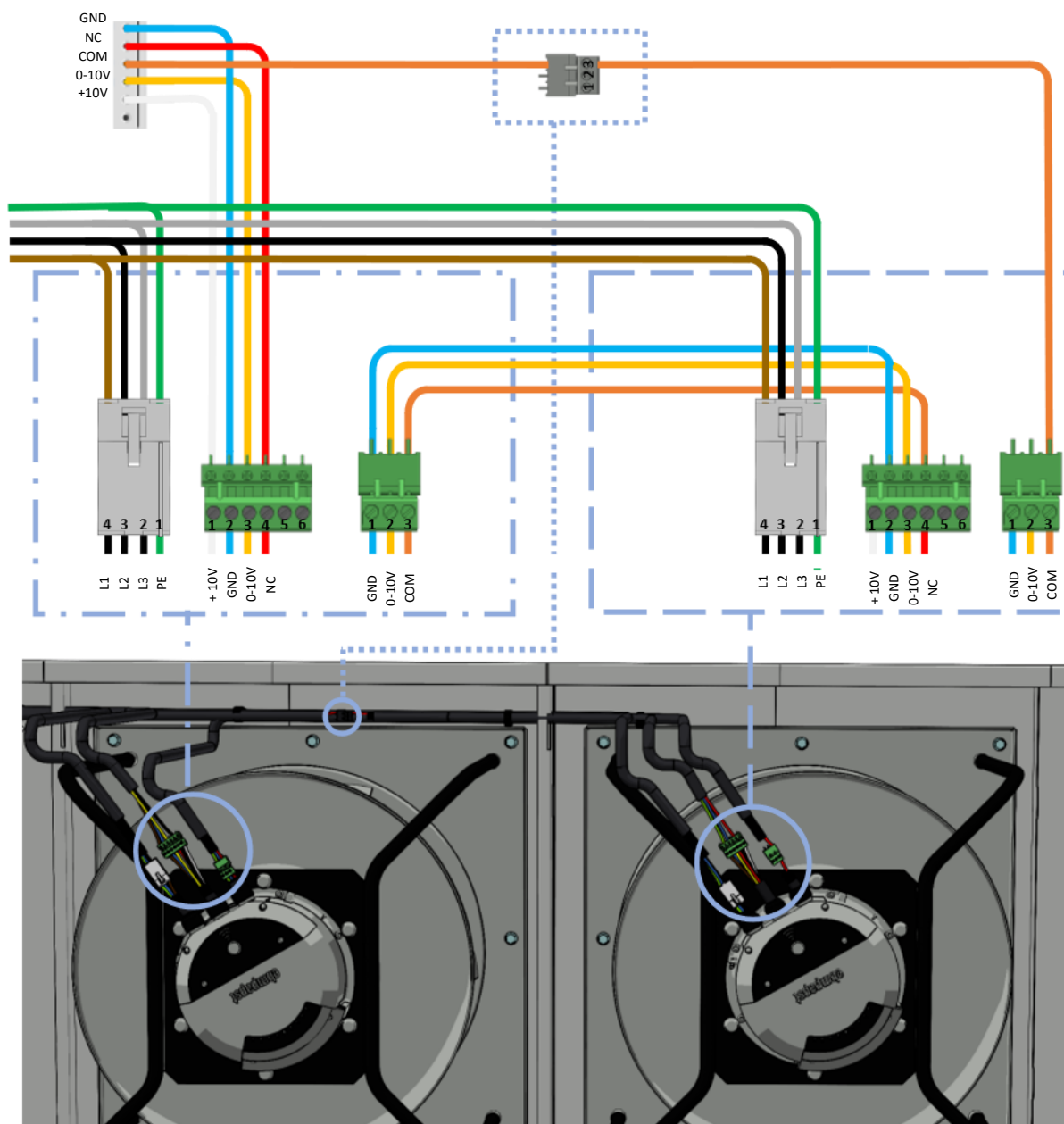
b) Without control system

Whether it is a single-block or multi-block unit, you are responsible for wiring the elements.

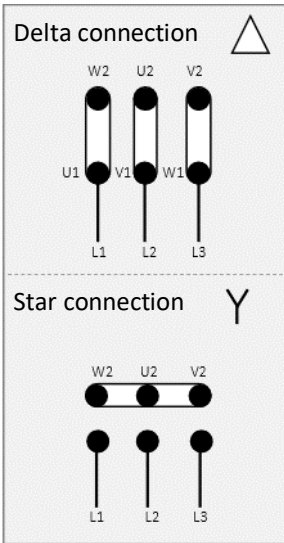
(1) Plug fan - EC motor



The fans have three connectors. Only the grey connectors are wired. This is the power circuit, which is directly linked to the isolating switch. The other two connectors relate to the control circuit. The typical wiring diagram to be followed is shown below. If there are several fans, the 3-pole connector can be used to link the fans to each other.



(2) Rotary heat exchanger

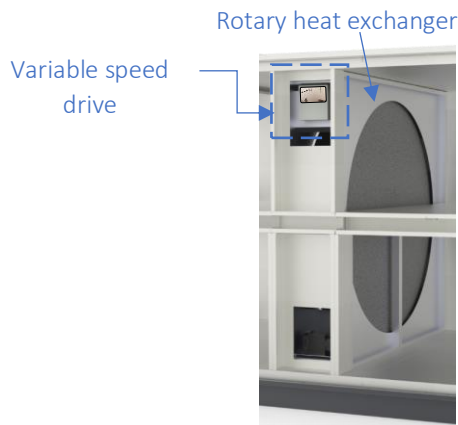


Constant speed:

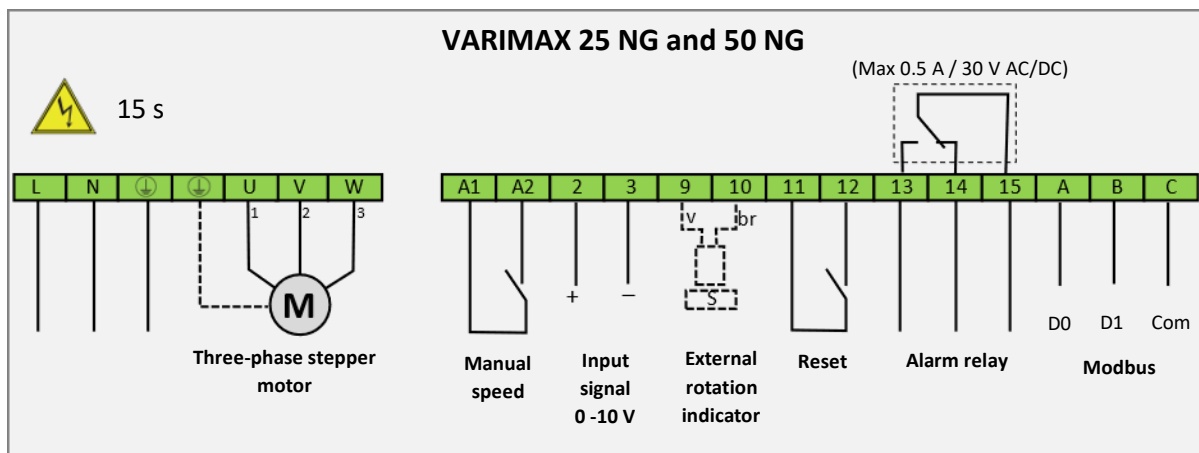
For a 220-240V supply voltage, the motor should be wired in a delta configuration.

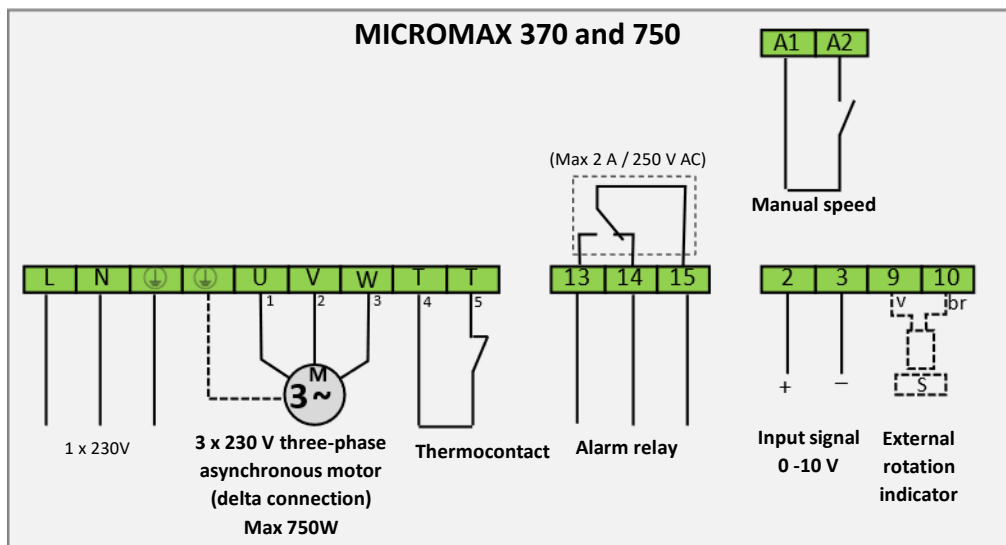
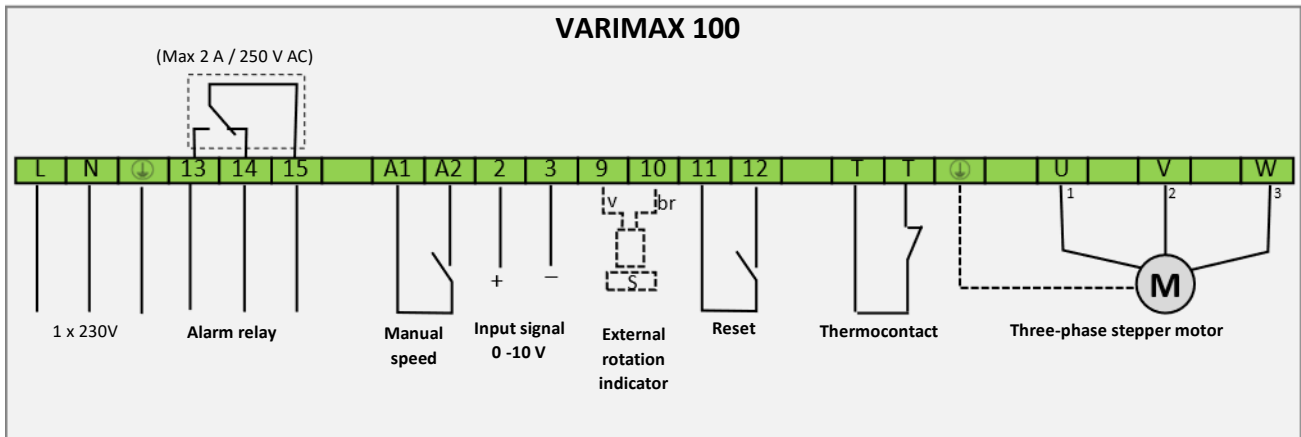
For a 380-400V supply voltage, the motor should be wired in a star configuration.

Variable speed:



There are three different ways of wiring the variable speed drive. Please refer to the wiring diagram specific to your variable speed drive.





Supply voltage (L-N-PE)	1 x 230-240V +/-15%, 50/60 Hz Caution: the earth must always be connected.
Motor (U-V-W)	The motor must be used. Swap two phases to change the direction of rotation.
Manual speed (A1-A2)	By connecting A1 and A2, it is possible to adjust the speed using a "Manual speed" potentiometer. Control range: 1 to 350 rpm on the motor. The rotor turns regardless of the value of the control setting. <u>Factory setting:</u> 11 h or 1 rpm on the motor shaft.
Max rpm (maximum speed)	Maximum speed adjustment potentiometer. Control range: 1 to 350 rpm on the motor. <u>Factory setting:</u> 11 h or 50 rpm on the motor shaft.
Input signal (2-3)	0 – 10 V Positive pole: terminal 2 Negative pole: terminal 3
12 V output (3-11)	12 V DC output Max 50 mA. Negative pole: terminal 3 Positive pole: terminal 11

External rotation indicator (9-10)	To use an external rotation indicator: Connect white cable: terminal 9 Connect brown cable: terminal 10 Install the magnet with the south pole (S) facing the sensor at a maximum distance of 15 mm.
Reset (11-12)	Push button to reset the controller. Remote reset in the event of a power failure
Alarm relays (13-14-15)	In the event of an alarm or power failure, terminals 14 and 15 are connected. Maximum resistive load: see diagram.
Modbus (A-B-C)	If Modbus is used: <i>(more information by scanning the QR code)</i> Terminal A -> D0: positive data channel Terminal B -> D1: negative data channel Terminal C -> Com: signalling earth
Thermal contact (T-T)	To prevent the motor from overheating, it must be connected.

For more information, a QR code on the variable speed drive can be scanned to access the complete manual for the variable speed drive and the Modbus configuration.

(3) Servomotor

Isolation damper

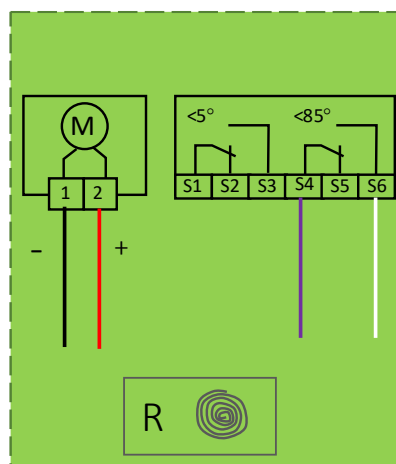
The servomotor on the isolation damper operates in the on/off mode, either fully closed or fully open. If the servomotor is fitted with a return spring, it will automatically return to its initial position if the power supply is interrupted. It can operate on 24 V or 230 V.

To change the direction of rotation, turn the servomotor over (R: turn to the right - L: turn to the left).

Or use the button on the side of the servomotor (CW <>CCW).

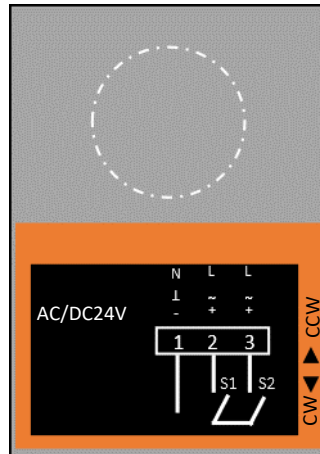
A mechanical stop must be set to lock the servomotor at its maximum opening angle. This setting is made using a metal part fitted directly to the servomotor.

Terminal 1: Negative pole
Terminal 2: Positive pole
S4: mechanical stop < 85°.
S6: mechanical stop > 85°



S1 closed: open the damper

S2 closed: close the damper



(4) Pressure gauge

The pressure gauges are placed directly on the doors of the unit.

VII. Commissioning



The installation must be performed by qualified personnel, who have been trained in air handling techniques, in compliance with all the instructions given in this manual and in accordance with the applicable regulations in the country of destination.

No access door must be open while the unit is operating.

Refer to the instructions for interventions described above (II.D)

To carry out any work inside the unit, the air handling unit must be de-energised and all rotating parts stopped.

Some configurations and parameters cannot be accessed without the manufacturer's code.

If you have requested commissioning, please find enclosed the aspects you will be responsible for and the aspects that will be carried out by the commissioning technician.

Commissioning of the units entails checking that the air handling unit base is on a flat surface, the siphons are in place, the blocks and roofs are watertight, the air inlets and outlets are correctly positioned, the hydraulic inlets and outlets are correctly positioned, the electrical voltages are correct, the accessories are correctly wired and that the set points (flow rate, pressure, heating/cooling) and operating ranges are correct.

IMPORTANT: The commissioning service does not include adjusting and adapting the AHUs to the building's air handling network and other equipment, or assistance with CTM / BAS supervision (checking the customer bus, reporting issues, etc.).

The unit user guides are included with the equipment. Please refer to them. For further information or any other service request, please contact our after-sales service.

The following work and checks are the responsibility of the installer:

- Checking the commissioning technician's site access authorisations
- Providing the human and material resources required for the commissioning.
- Checking that the right scaffolding is being used for the work being performed.
- Checking the lifting equipment
- Installing the AHU in a secure room with lighting.
- Manufacturing a base frame, if required, and installing the AHU or modules in their final location, taking into account the type of installation (exterior or interior) [drilling, sealing, etc.].
- Connecting and wiring the blocks, where applicable.
- Installing filters on the unit
- Connecting the AHU's hydraulic, electrical (power supply and connection between modules) and refrigeration circuits to the building's various networks.
- Connecting the external automatic control systems (pumps, etc.).
- Performing the air handling unit air connections
- Installing the kits supplied by Hydronic

- Checking that the air handling circuits are in working order.
- Installing the remote equipment (pressure sensor housed in a duct) or safety equipment (self-contained fire detector panel, smoke detector, etc.).
- Checking the compliance and functionality of power supply networks.
- Electrical connection of the units (electrical circuit breakers marked on the electric panel)

Once the assembly and installation operations have been completed, commission the unit in accordance with the following steps:

- Remove any protective film.
- Check that all parts of the tunnel are complete and undamaged (panels, doors, locks, handles, seals, inspection hatches).
- Remove all the transportation locks.
- Check that there are no foreign objects in the air handling unit or in the ductwork.
- Check that the air handling network is completely open (ducts, damper, valve, vents, diffuser) when commissioning at constant pressure.
- Check that all the components of the unit are securely fastened.
- Check that the connections between the housings are tight.
- Check that the unit is firmly attached to the support structure.
- Ensure that the inside of the unit and the hydraulic and air handling networks are clean.

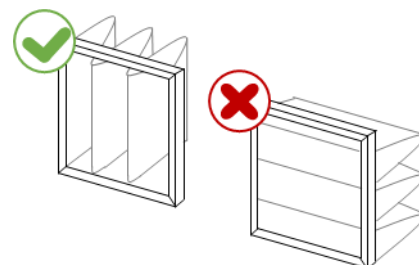
DAMPER - MIXING BOX

- Check that the damper and mixing box are clean and free of foreign objects.
- The damper must be in the open position before the fans are switched on.
- If fixed settings are used, check that the selected opening position is maintained and that the blades overlap when closed.
- In the case of servomotors, check the power supply, the connection and the power of the servomotor.

Check that the dampers have reached their end stop and that the direction of rotation is correct.

FILTERS

- Check that the filters are clean.
- Check that the filter pockets are in a vertical position where possible.
- Check that the filter is securely fixed in its holder.
- Check that the instruments used to measure pressure losses are working properly.
- Start up the installation with the pre-filters only. After a few hours, change them if necessary and install all the filtration stages.
- Once the fans are running, read the initial pressure loss for each filter.



Preferred position of filters in the unit

HYDRAULIC BATTERIES

If you are using glycol protection (freeze protection for the hydraulic circuit):

- Prepare a correctly measured mixture of water and antifreeze in a container before pouring it into your system. **Never pour pure antifreeze into the coil.**

The glycol concentration depends on the minimum temperature that the coil will have to withstand:

Ethylene glycol concentration [%]	0%	10%	20%	30%	40%	50%	60%
Freezing temperature of water-glycol mixture [°C]	0	-3	-7	-14	-24	-35	-51

- Add the water-glycol mixture and pressurise using a hydraulic pump.
- Circulate the mixture throughout the system for at least 2 hours before starting up the equipment.
- Check the final dose obtained.
- Indicate the antifreeze product used and its concentration.
- When draining, dispose of the fluid in accordance with the regulations in force at the installation site.

For all types of fluid used:

- Check that the fluid used and the fluid temperatures comply with the information on the nameplate.
- Check the fluid inlet and outlet connections.
- Check that the shut-off valves have been correctly installed.
- Open the bleed valves if they do not have an automatic feature.
- Fill the system slowly with water from the lowest point.
- Open the bleeders slightly and wait for the coil to fill with water.
- Open the bleeders fully.
- Close the bleeders when there is no more liquid coming out of them.
- Switch on the pumps, check the direction of rotation and run the system for a few minutes.
- Check for leaks.

For cooling batteries, in addition to the above actions, ensure that:

- Clean the drip tray and condensate drain.
- Fill the siphon with water.
- Rinse the drip separator with water if necessary.

For steam or superheated water batteries, only operate the coil when the fan is running.

ROTARY HEAT EXCHANGER

- Check that it is clean and free of foreign objects.
- Check the condition of the seals.
- Check that the impeller rotates freely. The rotor must move smoothly and evenly around its shaft.
- Check that the belt is not broken and that it is sufficiently taut.
- Make sure the siphon connected to the condensate drip tray is primed.
- Check the alignment of the motor.
- Check the supply voltage and motor wiring.
- Check that the direction of rotation of the impeller is correct, otherwise reverse the connection of two phases on the motor.
- Check the impeller rotation speed.
- Check the current consumed.
- Check the operation of the pressure and temperature sensors.

PLATE HEAT EXCHANGER

- Check that it is clean and free of foreign objects.
- Check the condition of the seals.
- Check that there is a condensate discharge siphon, that it is the right size and that there are no foreign objects hampering drainage of the condensates.
- Make sure the siphon is primed.
- Check that the bypass damper is working properly, where applicable. If this check is not performed, there is a risk of frost or ice build-up. The consequences thereof are not our responsibility.
- Check the operation of the pressure and temperature sensors, where applicable.
- Check that the pressures do not exceed the maximum permissible values for the plate heat exchanger. We cannot be held responsible for any consequences arising from failure to comply with this rule.

MOTOR FAN UNIT

Plug fan - EC MOTOR

- Check that the electrical voltage corresponds to that indicated on the fan nameplate.
- Check the calibration of the thermal protections in relation to the currents of the various components.
- Check that the fan unit is clean and free of foreign objects.
- Manually check that the impeller rotates freely.
- Check that the fans are securely fixed to the wall.
- Check that the earth is connected.
- Check the wiring between the motor and the electrical box.
- Check the air flow and pressure available.

Air flow calculation for EC motors:

$$Q_v = K\sqrt{\Delta P}$$

Where:

- Q_v volume flow rate [m³/h]

- K: calibration factor
- ΔP : pressure difference [Pa]

The pressure difference is measured upstream and downstream of the fan. A pressure gauge or pressure switch can be used to obtain the value ΔP .

The value of the K factor is provided by the supplier and these values depend in part on the diameter of the turbine. Use the following values. Make sure you use the value corresponding to the type and brand of fan installed on the unit.

<i>Reference¹</i>	Brand	Turbine diameter (mm)	Calibration factor K
<i>*3G250*****</i>	ebmpapst	284	70
<i>*3G280*****</i>	ebmpapst	319	93
<i>*3G310*****</i>	ebmpapst	360	116
<i>*3G355*****</i>	ebmpapst	405	148
<i>*3G400*****</i>	ebmpapst	445	188
<i>*3G450*****</i>	ebmpapst	530	240
<i>*3G500*****</i>	ebmpapst	585	281
<i>*3G560*****</i>	ebmpapst	655	348

- Check the strength of the current drawn by each phase; it must not exceed the value shown on the nameplate.

SOUND TRAP

- Check that the chamber and baffles are clean.

CONTROL

If the unit is supplied with a control system, refer to the control system manual for commissioning. Once these steps have been completed:

- Check the installation of the measurement and control equipment.
- Check the electrical connections between the components and the electrical box.
- Check that the measuring equipment is working properly.
- Check the configuration and parameters of the control system.
- Check the control programmes.

¹ The * represent numbers and letters that have no bearing on the value of the K calibration factor.

CHECKS

Once commissioned, check the following points:

- Check that the water is running away:
 - Check that the water is draining properly and that the siphon is always full.
- Mechanical noise check:
 - In the event of abnormal noise:
 - Check the turbines for foreign objects.
 - Check that the turbines are centred on the FMA frame hose.
 - Check that the turbines rotate freely when they are stopped.
 - Check that the turbines are correctly balanced.
 - Check that the turbines are rotating in the right direction.
 - Check that there are no vibrations.
- Airborne noise check:
 - In the event of abnormal noise:
 - Check that the ducts are securely fastened to the unit.
 - Check that the blocks are properly connected, if applicable.
 - Check that the doors are closed properly.
 - Check that the damper servomotors are correctly configured.
- Hydraulic noise check:
 - In the event of abnormal noise:
 - Check the operation of the air vents.
 - Check the water flow rate.
- Check the current strength on the electrical equipment:
 - Using a clamp ammeter, check that the currents do not exceed the values indicated on the component nameplates.
 - Check the phase balance.
- Check that the safety devices (housing, protective grille) are working properly:
 - Check that the safety devices are securely fastened and are not in contact with moving parts.
 - Check that the door contacts cut off the power supply to the motors and the control system.
 - Check that the fire/smoke detector is working (using an aerosol spray).
 - In the case of an electric coil, check the minimum flow cut-off value.
- Operating report:

Take an initial reading of all the values for the following variables: flow rates, pressure, air temperature, filter and heat exchanger pressure drops, voltages and currents.

VIII. Maintenance, cleaning and replacement



Switch off the power supply to the air handling unit before carrying out any work. Servicing must be carried out by qualified personnel. Refer to the instructions for interventions described above (II.D)

A. General information

Regular servicing of the unit ensures optimum operation, but does not exempt the user from carrying out maintenance operations and checking for damage at regular intervals.

The frequency of the servicing is given as an indication only, and does not take into account all the specific factors that may result in a longer or shorter service life.

Overall servicing of the unit:

- Remove coarse dust using an industrial Hoover.
- Use a damp cloth and a non-abrasive product for cleaning.
- Treat galvanised parts with a protective spray.
- Grease all moving parts as required.
- Apply anti-corrosion paint if necessary.
- Check the condition of the seals and clean them if necessary.




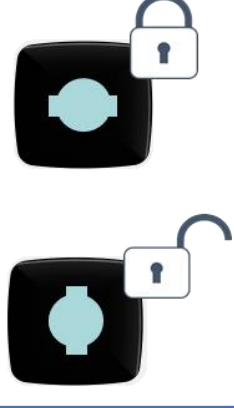
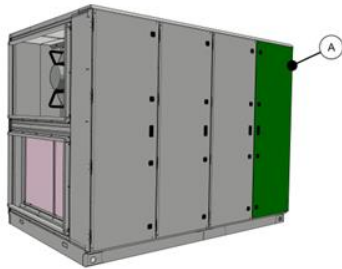
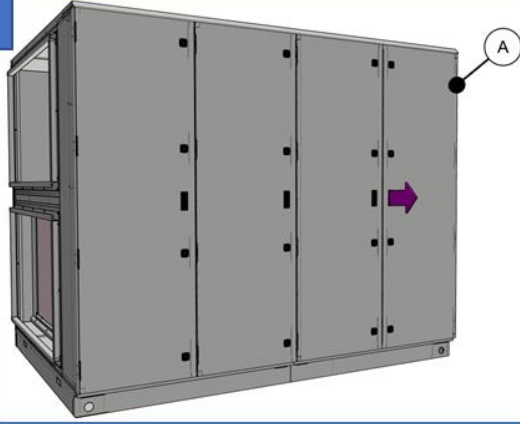
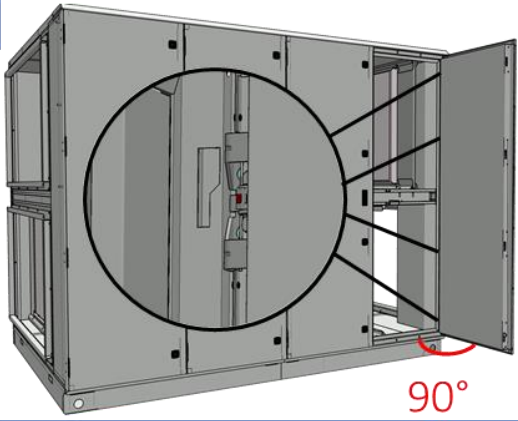
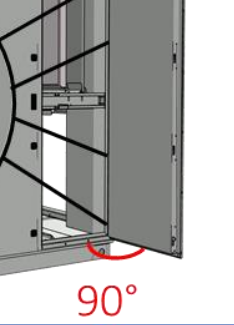
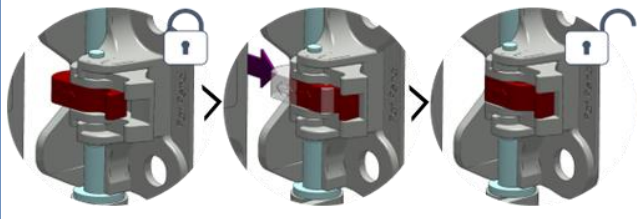
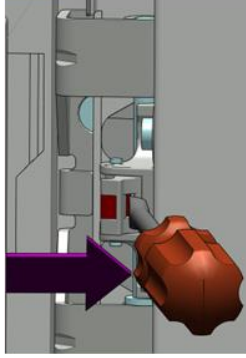
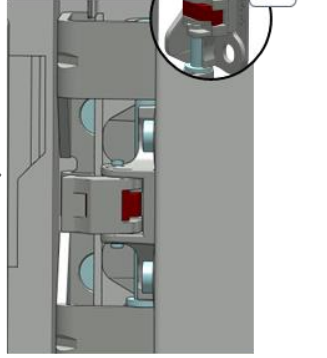
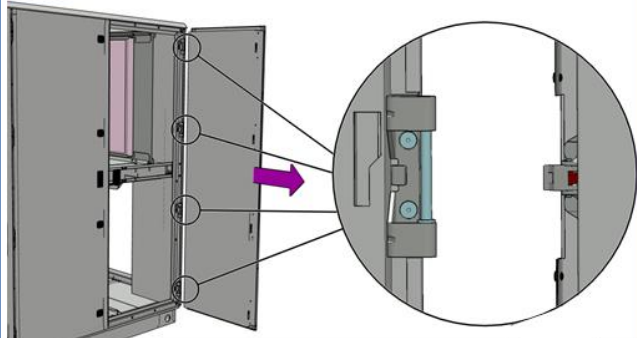
Warning: in the cleaning procedures for certain components below, it may be advisable to use a disinfectant or a high-pressure cleaner. If you do, you must take care not to dampen the other components of the unit (filters, electronic components). You must also ensure that the unit and its components are completely dry and free of water before restarting it.

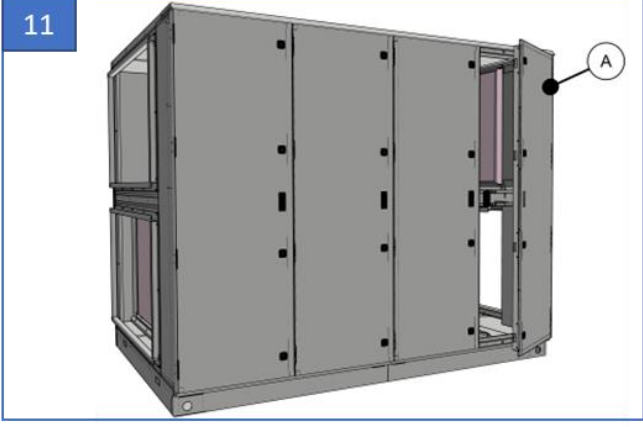
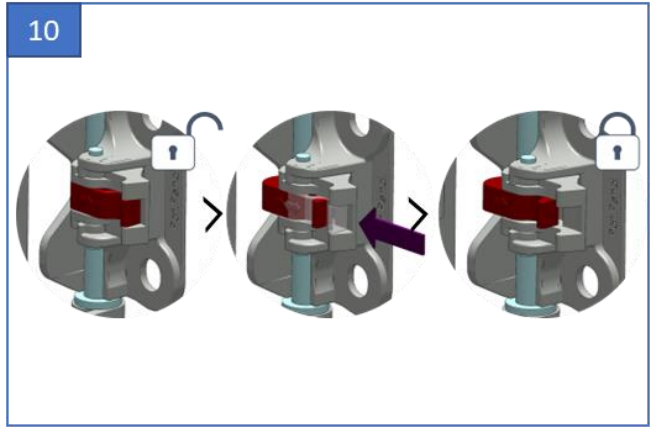
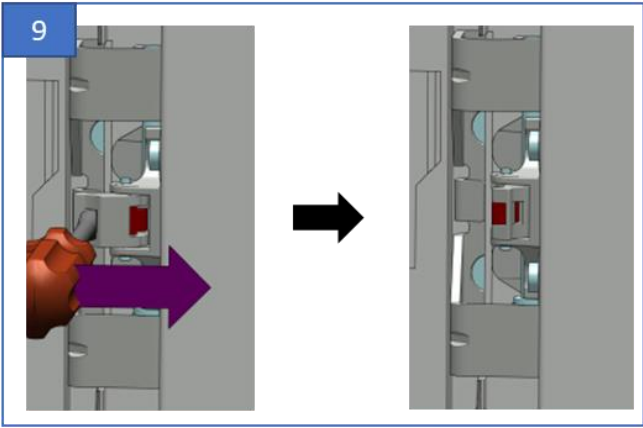
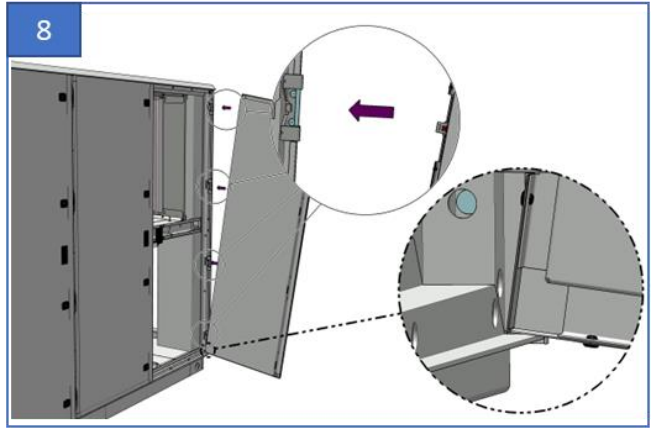
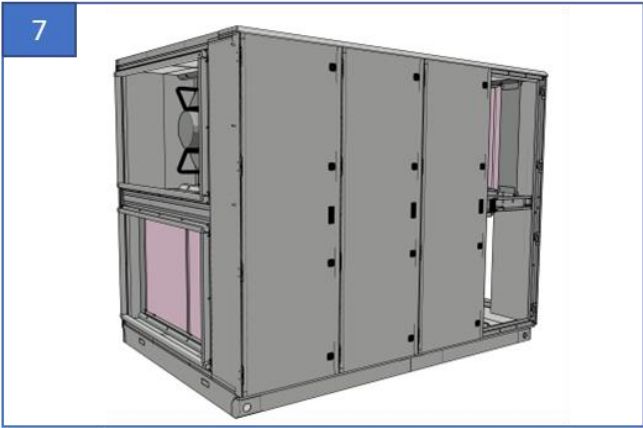
If components cannot be cleaned, they must be replaced.

B. Tunnel





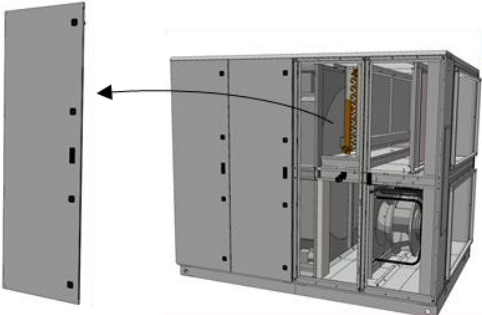

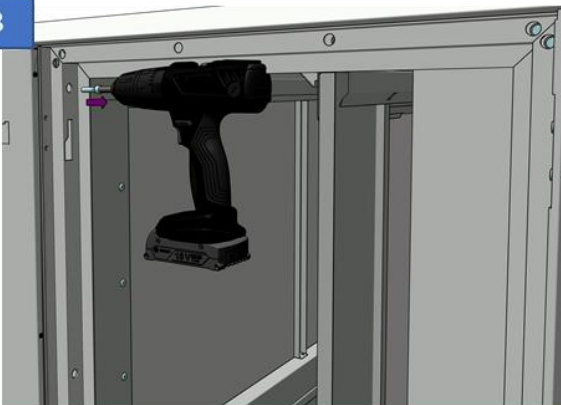
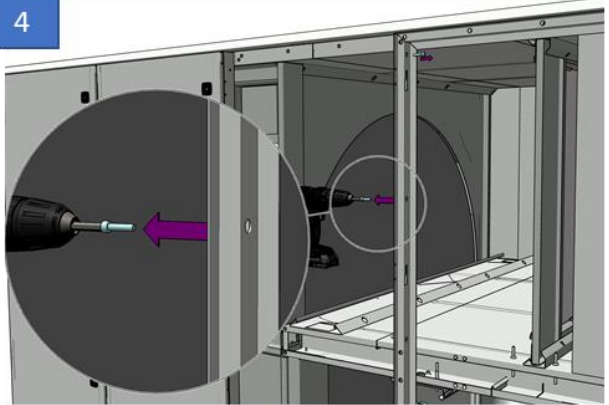
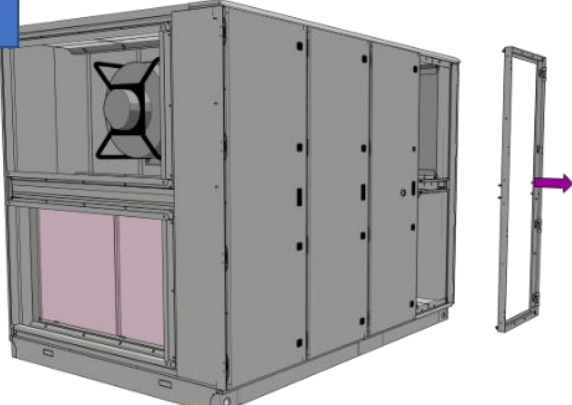
1. Doors

a) Dismantling

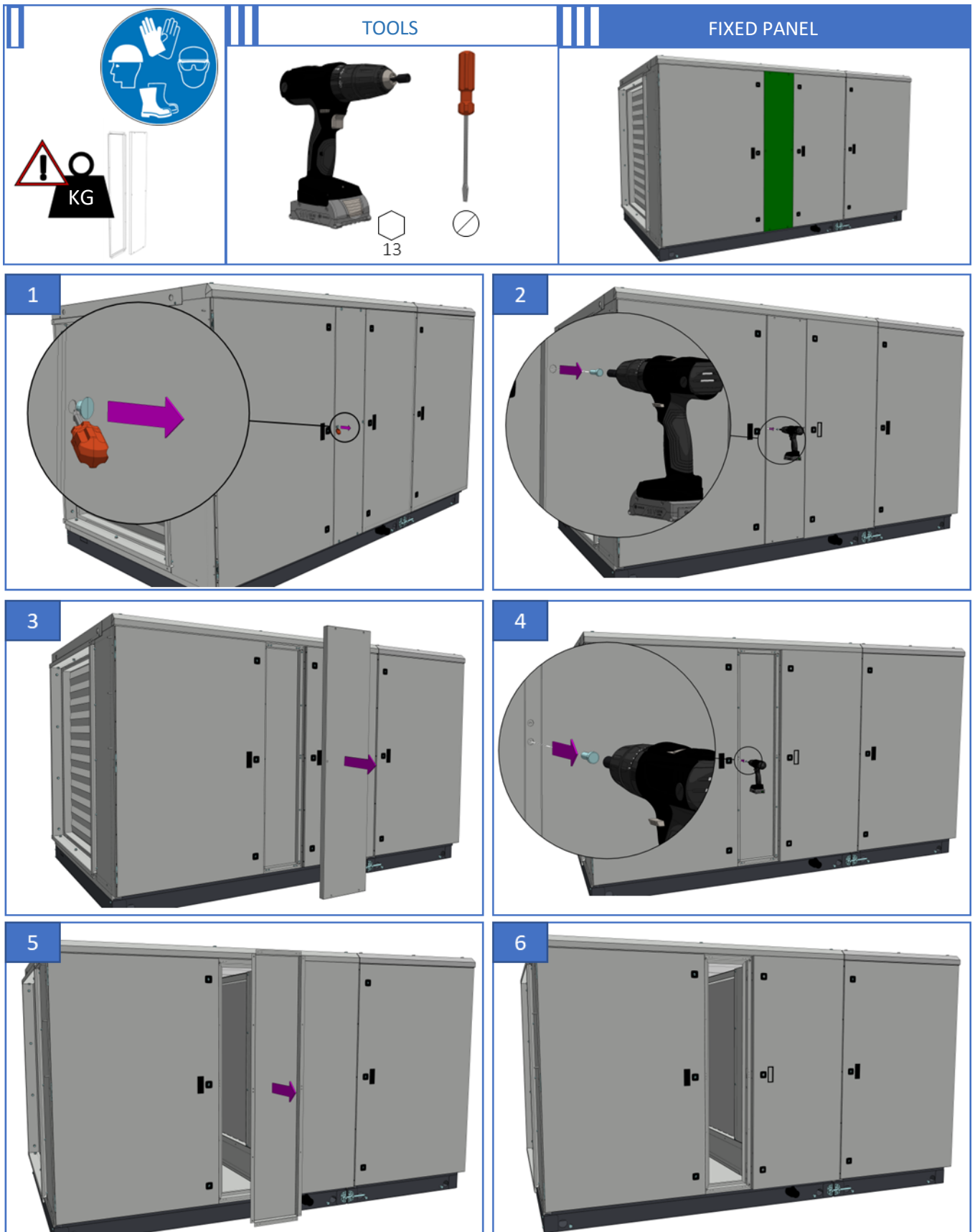
	TOOLS	DOOR
 1 	 	 2 
3 		4 
5 		6 





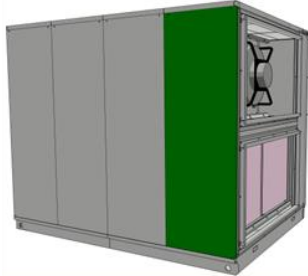
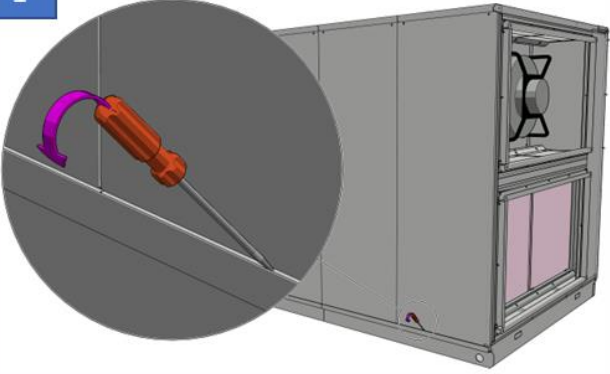
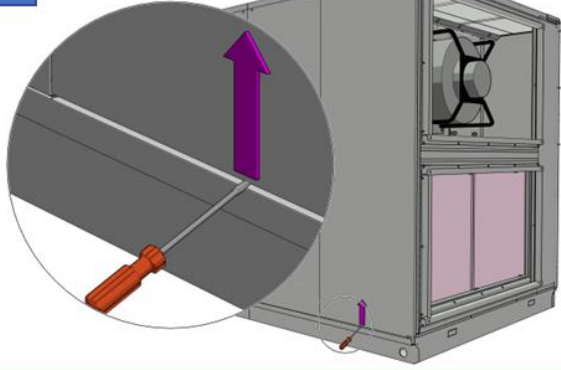
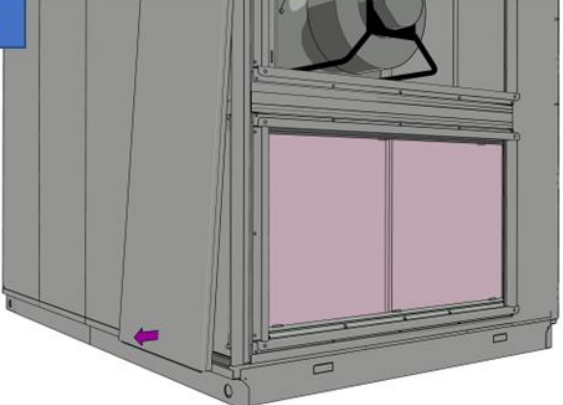
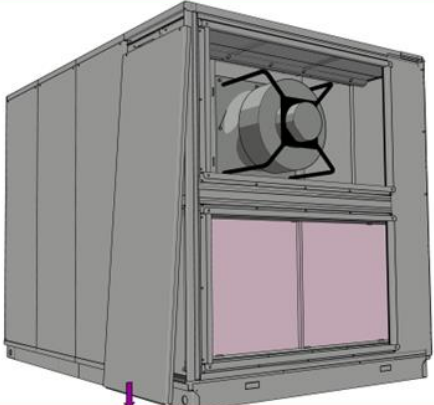
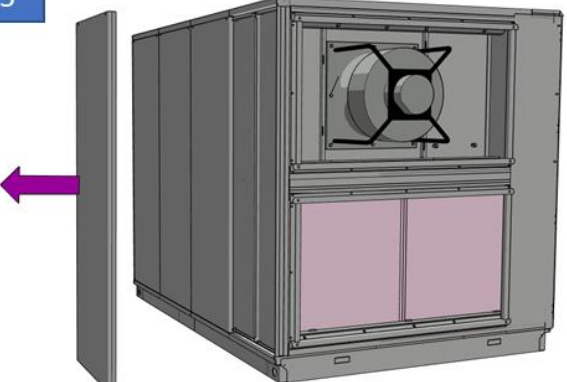
2. Frames
a) Dismantling

	TOOLS   5 mm	DOOR FRAME 
<p>1</p> <p>DOOR MANUAL Remove the door(s)</p> 	<p>2</p> 	
<p>3</p> 	<p>4</p> 	
<p>5</p> 		

3. Fixed panel
a) Dismantling



4. Rear panel
a) Dismantling

	<p>TOOLS</p> 	<p>REAR PANEL</p> 
<p>1</p> 	<p>2</p> 	
<p>3</p> 	<p>4</p> 	
<p>5</p> 		


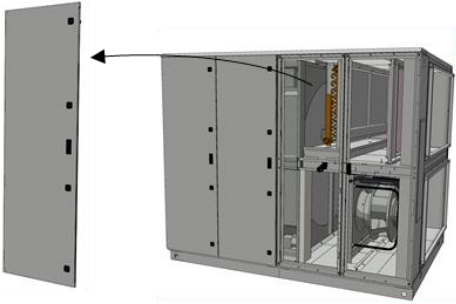

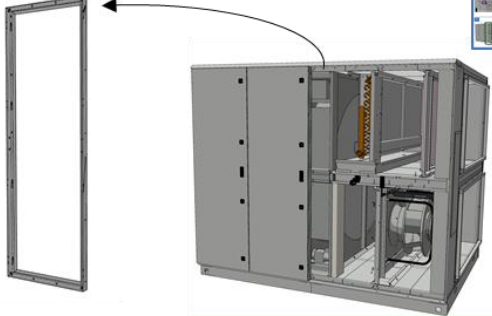

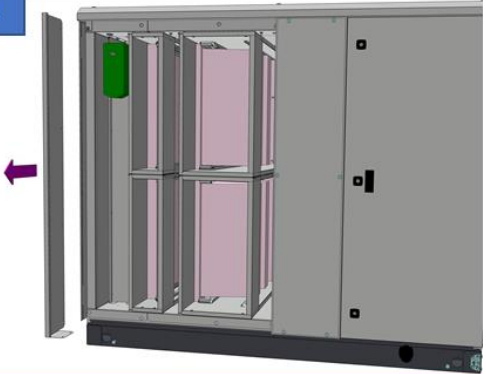
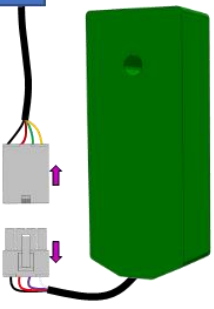
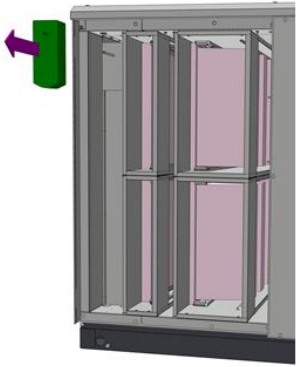
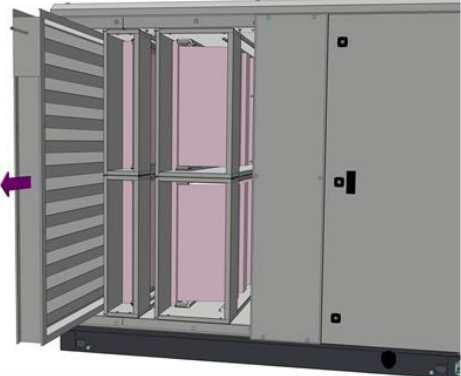
C. Dampers/ Mixing box

1. Servicing

The damper should be cleaned with a soft brush or a Hoover with a soft nozzle to remove any dust that may accumulate. To facilitate cleaning and limit damage to the blades, close the damper blades during servicing.

The moving parts of the damper must be regularly protected with a suitable protective oil.

2. Replacement

	TOOLS	DAMPER
1 DOOR MANUAL <i>Remove the door(s)</i> 	 PH2	2 DOOR FRAME MANUAL <i>Remove the door frame(s)</i> 
3 		4 
5  		6 

D. Filters

1. Servicing

The filters are flammable, so keep them away from flames.

Filters can irritate the skin, respiratory tract and eyes. Wear suitable personal protective equipment during assembly, cleaning or replacement operations.

- Check for clogging based on the pressure drop reading. When the maximum permissible pressure drop is reached, change the filters.

As a general rule, the following pressure loss values apply:

Former Class	Class	Final pressure drop reading
G4	ISO COARSE	If initial pressure drop ≤ 25 Pa: Initial pressure drop x 3 Otherwise: Initial pressure drop + 50 Pa
M5 – F7 – F8 – F9	ePM10 ePM2.5 ePM1	If initial pressure drop ≤ 50 Pa: Initial pressure drop x 3 Otherwise: Initial pressure drop + 100 Pa
HEPA	E10 – E12 – H13 – H14	Initial pressure drop + 100 Pa

The filter class is indicated on a label stuck to the filter frame.

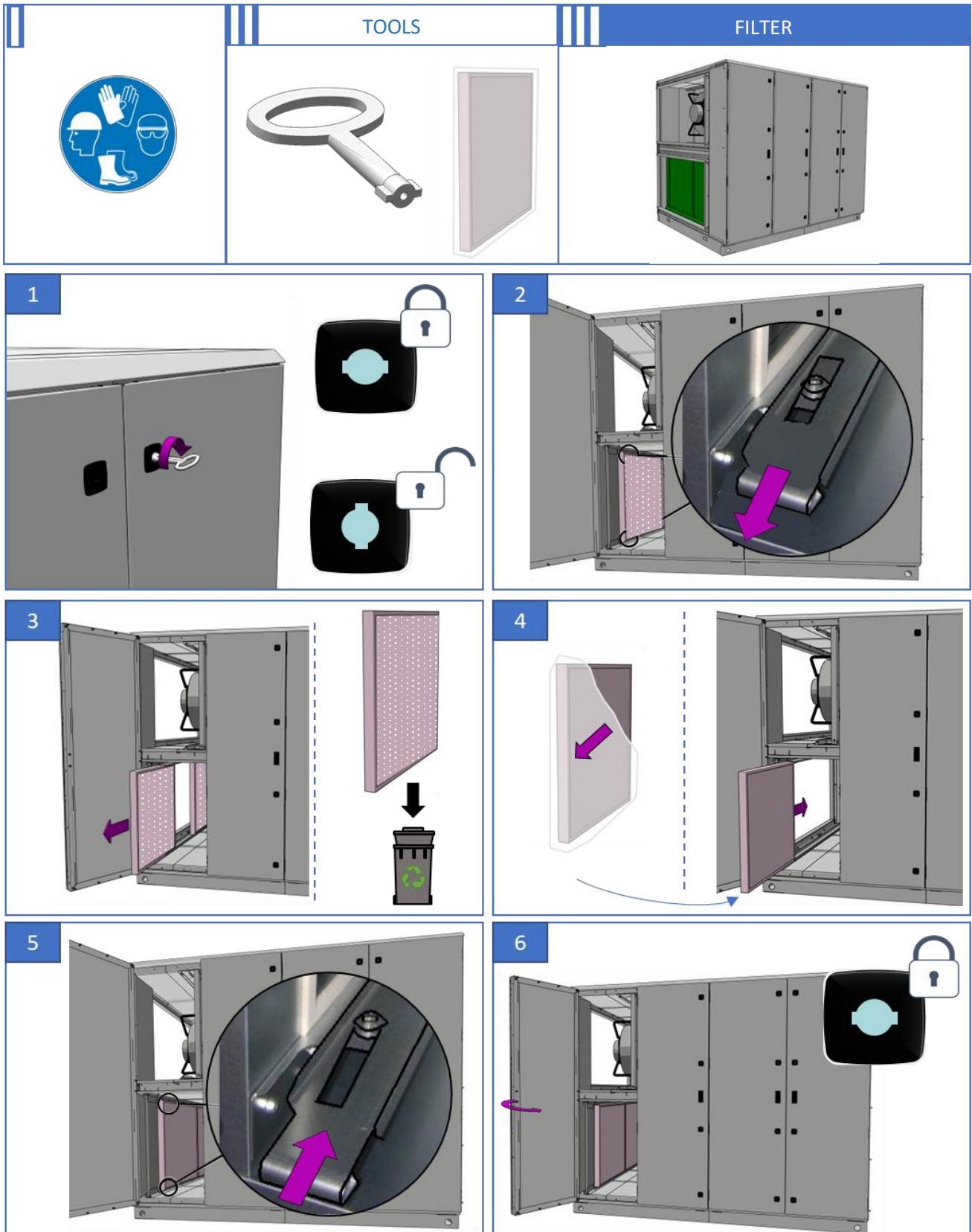
The value of the initial pressure drop was measured when the unit was commissioned.

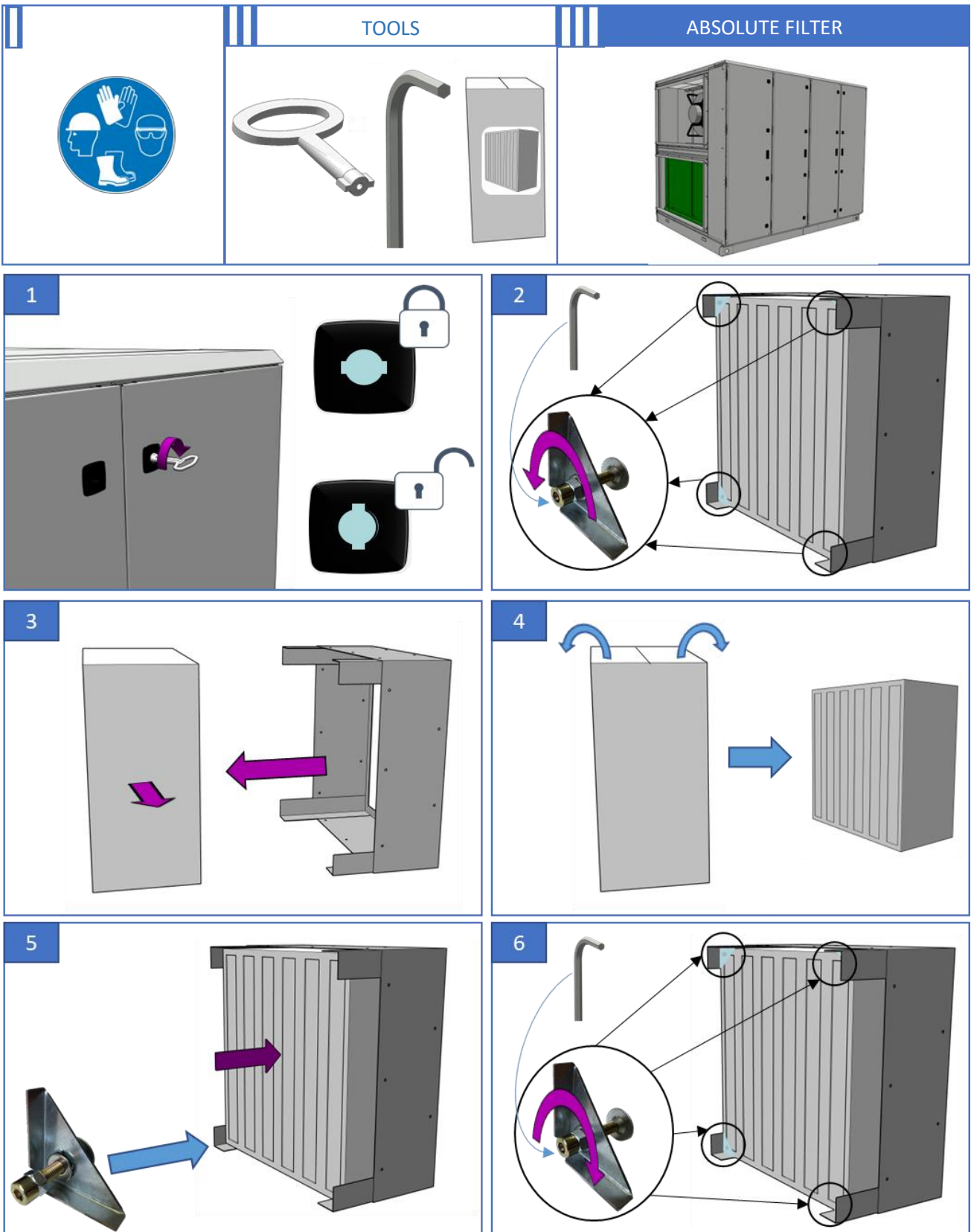
- When replacing the filter, clean the parts upstream of the filter and the filter holder

Used filters are Ordinary Industrial Waste (OIW). In some cases, when the unit is installed in a potentially hazardous environment, used filters must be treated as hazardous waste. Waste management can be delegated to an approved facility.

Treatment of used filters is the responsibility of the customer.

2. Replacement





E. Rotary heat exchanger

Before carrying out any maintenance work, wait until the impeller has come to a complete stop and the drive motor and transmission have cooled down. Be particularly careful of any sharp edges.

1. Servicing

The rotor cleans itself when rotating, but additional cleaning may be required.

Cleaning procedure:

- 1) Rinse the exchanger with water using a high-pressure cleaner. Position the nozzle 300 mm from the heat exchanger. Vary the angle by +30 and -30 degrees. Spray the whole of the impeller. Rotate the impeller to clean any hidden areas.
- 2) Leave the heat exchanger to air dry.
- 3) Spray the heat exchanger with a mild detergent [such as washing-up liquid] using a low-pressure sprayer. The detergent can be diluted to 75% using water.
- 4) Rinse the exchanger with water using a high-pressure cleaner. Position the nozzle 300 mm from the heat exchanger. Vary the angle by +30 and -30 degrees. Spray the whole of the impeller. Rotate the impeller to clean any hidden areas.
- 5) Leave the heat exchanger to air dry

Disinfection procedure:

- 1) Spray the disinfectant from a distance of 50-100 mm [isopropanol-based disinfectant, not to be diluted with water]. Use a standard spray bottle. Spray all over the impeller. Rotate the impeller to clean any hidden areas. Spray both sides.
- 2) Leave the heat exchanger to air dry for 30 minutes.
- 3) Rinse the exchanger with water using a high-pressure cleaner. Position the nozzle 300 mm from the heat exchanger. Vary the angle by +30 and -30 degrees. Spray the whole of the impeller. Rotate the impeller to clean any hidden areas. Make sure that all the detergent has been removed.
- 4) Leave the heat exchanger to air dry.

In the case of a rotary adsorption heat exchanger (silica gel or molecular sieve), a small amount of excess material may come off during initial use. Simply remove it with a Hoover. The hygroscopic properties of the impeller will not be affected.

Leaktightness of the brush seals:

The leaktightness between the brush seals and the housing must be checked. The brush seals are easily adjusted by unscrewing the screws and moving the brush seal to the correct position.

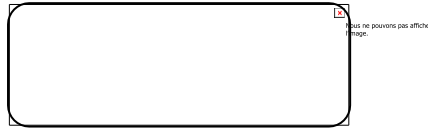


Cleaning the bleed compartment:

To clean the bleeders properly, unscrew the brush seals. You will then have access to the bleeders and can clean them properly. Carry out the same cleaning and/or disinfection procedure as for the heat exchanger.

Adjusting the belt tension:

In the case of a drive belt:



The belt is subject to natural stretching, which may require it to be shortened.

- Turn the belt and remove the links to shorten the belt.

The belt tension must be 1 to 2%, i.e., the length of the belt must be 1 to 2% shorter than the length travelled. In practice, calculate the circumference of the impeller ($\pi \times \varnothing_{impeller}$) and remove one link per metre of belt to obtain the correct tension.

- Make sure that the thinner side of the belt is always in contact with the inside of the roller.
- Reposition the belt correctly on the impeller and motor pulley.
- If applicable, adjust the parameters of the variable speed drive.

In the case of a round belt:



The round belt is a single welded unit. If the belt is stretched:

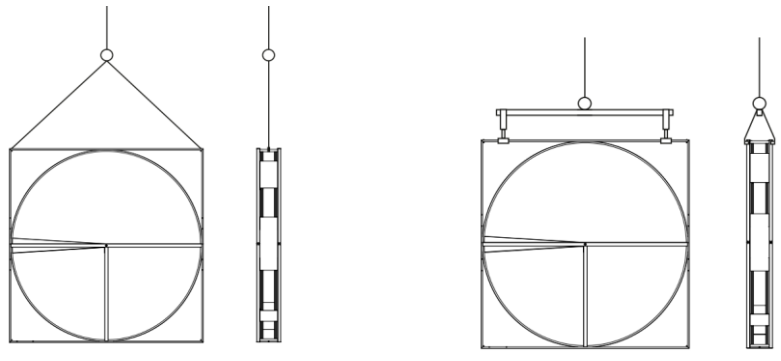
- Cut the belt.
- Shorten the belt. The belt tension must be 3%.
- Take the special joining pin, which is fixed to the inside wall of the exchanger, next to the motor.
- Using pliers, insert the special joining pin on each side of the belt.
- Reposition the belt correctly on the impeller and motor pulley.
- If applicable, adjust the parameters of the variable speed drive.




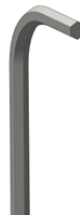
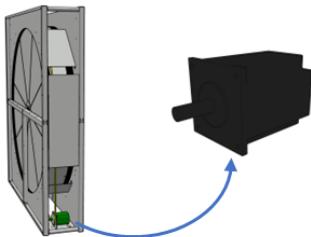
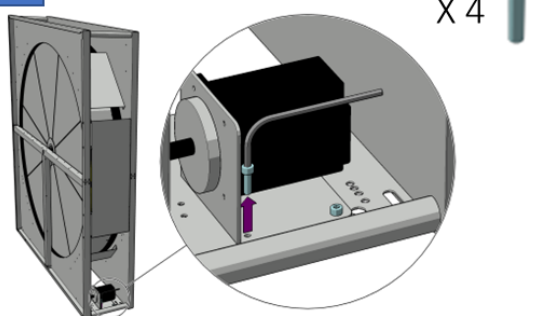
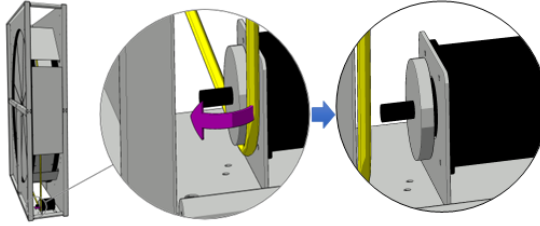
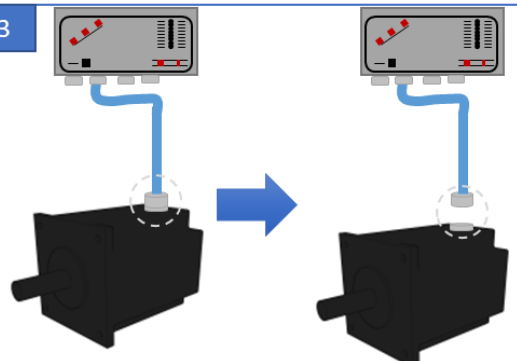
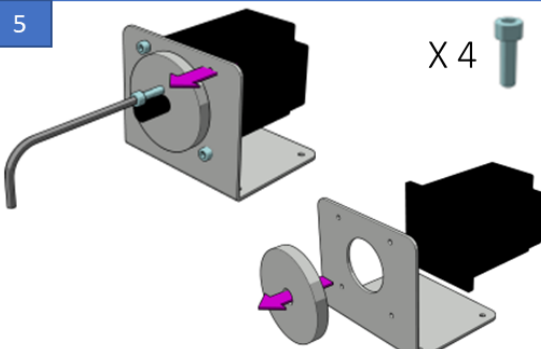
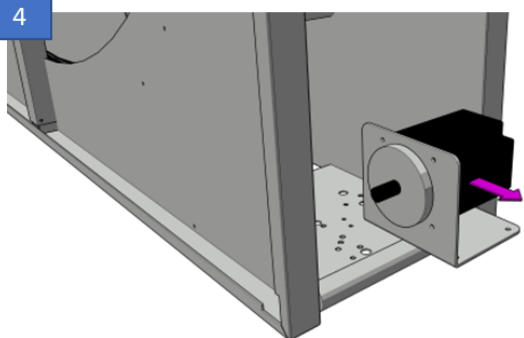
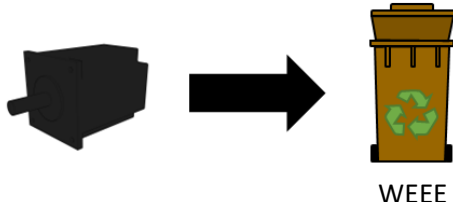
2. Replacement

When replacing a rotary heat exchanger, make sure that it is always transported vertically after it has been removed from the unit. When being handled, it can either be lifted by its two upper corners or its gable ends.

Store the rotary heat exchanger on a flat surface, in an enclosed area, away from light and moisture. The storage temperature must be above 0°C.



Motor replacement:

	TOOLS	ROTARY MOTOR
		
<p>1</p> 	<p>2</p> 	<p>3</p> 
<p>5</p> 	<p>4</p> 	<p>6</p>  <p>WEEE</p>

Variable speed drive replacement (*applicable if variable speed impeller*):

The variable speed drive can be removed once it has been disconnected. Then unscrew the 4 screws on either side of the heat exchanger where the variable speed drive is located. Then replace it.

Once the variable speed drive has been changed, make sure it is correctly rewired to the heat exchanger and the control system. Adjust the parameters of the variable speed drive if necessary.

F. Plate heat exchanger
1. Servicing

The plate heat exchanger should be cleaned with a soft brush, Hoover or compressed air. Make sure you use a soft nozzle and low pressure to avoid damaging the heat exchanger fins.

To remove grease or solvent residues, hot water and a degreasing agent must be used. Make sure you use a product that is suitable for aluminium.

A disinfectant suitable for aluminium can be used to disinfect it.

N.B.:

- In the case of a plate heat exchanger with a bypass system, a damper is fitted. Whether it has a manual or motorised actuator, it must never be cleaned with a high-pressure cleaner. The damper must be cleaned in accordance with the recommendations in the paragraph on damper maintenance. ([Dampers/ Mixing box](#))
- After using cleaning products, make sure you rinse the exchanger thoroughly using a high-pressure cleaner. Be careful not to get too close to the heat exchanger and to use a low enough pressure to avoid damaging the heat exchanger.
- Make sure the heat exchanger is completely dry before restarting the unit.

Cleaning the condensate drip tray:

The condensate drip tray must be cleaned with a damp cloth.

If the tray is removed from the unit, it can be cleaned with hot water and a mild detergent, then rinsed with clean water and dried, and then finally put back in place.

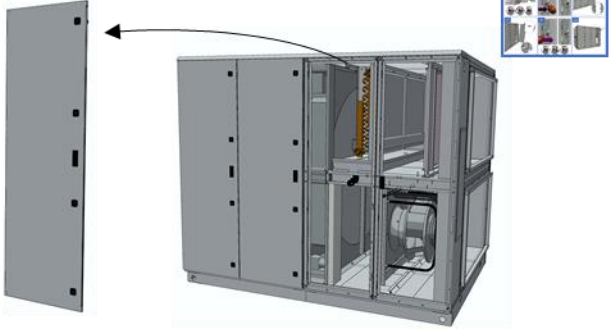
2. Replacement

Bypass damper replacement:

	TOOLS	PLATE DAMPER
	<p data-bbox="651 226 730 253">TOOLS</p>  <p data-bbox="501 349 603 383">13</p> <p data-bbox="501 479 603 512">PH2</p>	<p data-bbox="1114 226 1305 253">PLATE DAMPER</p> 

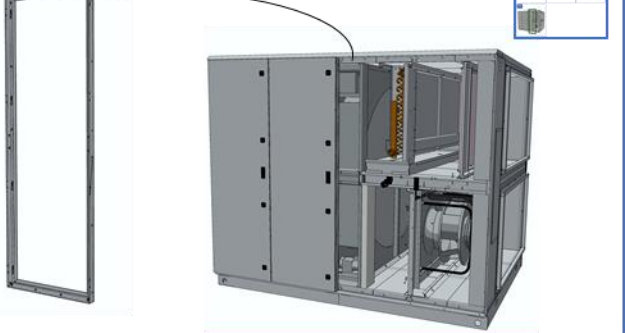
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DOOR MANUAL
Remove the door(s)

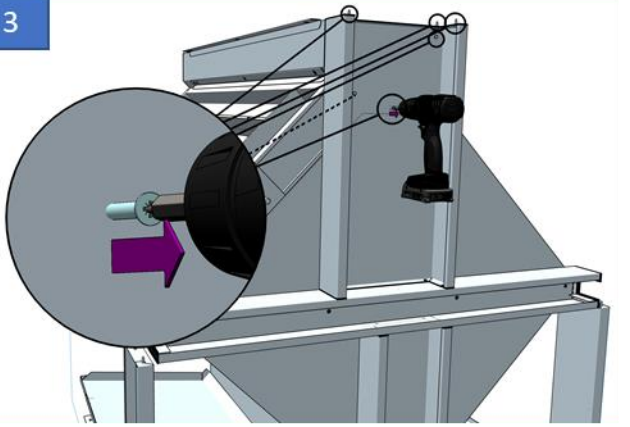


2



DOOR FRAME MANUAL
Remove the door frame(s)

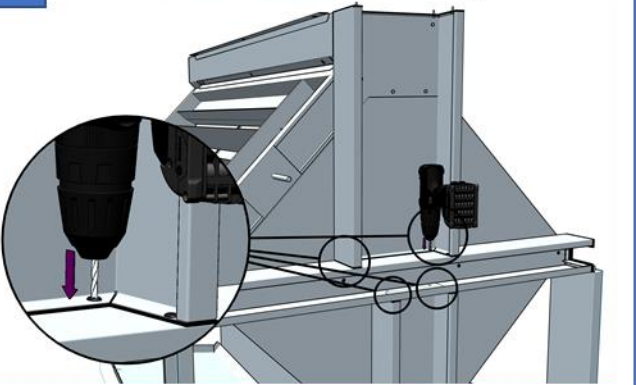


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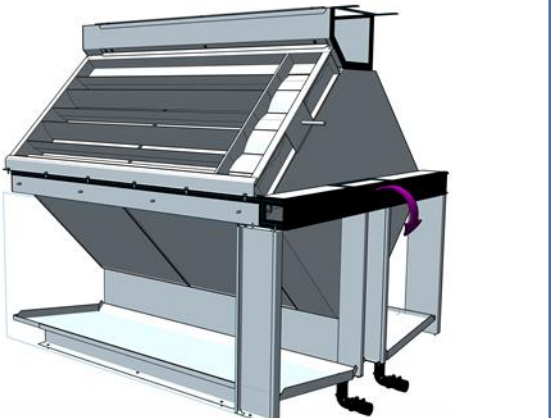
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6



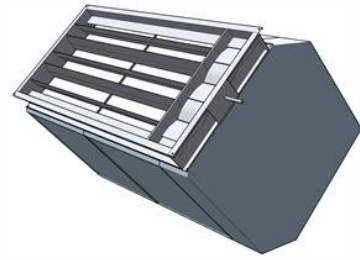
TOOLS

PLATE DAMPER

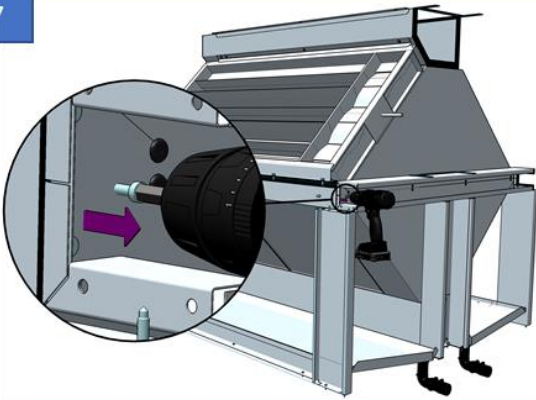


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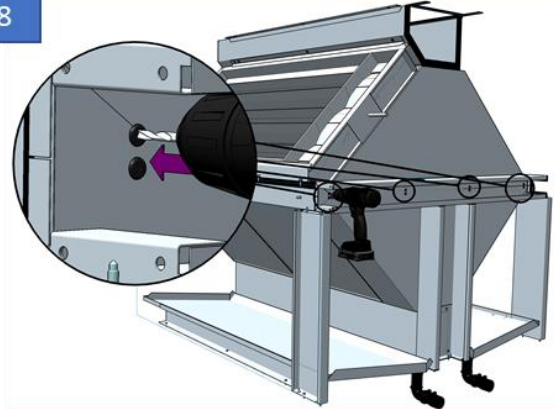
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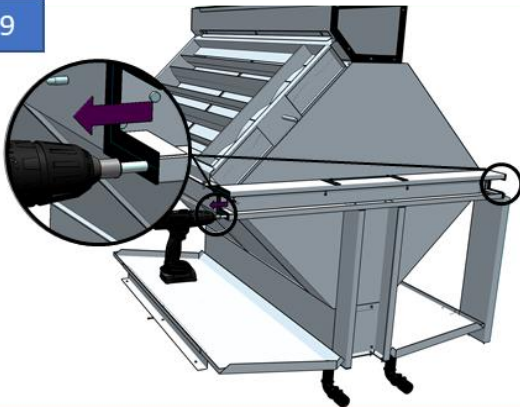
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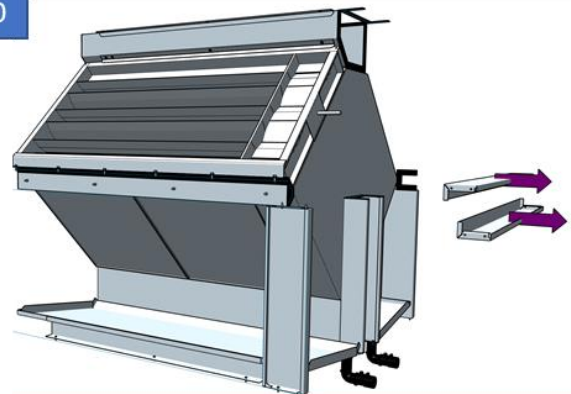
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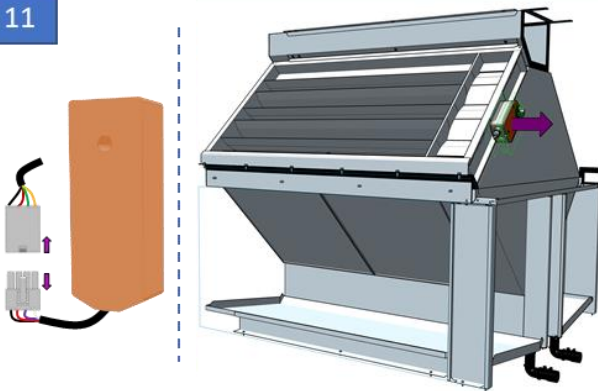
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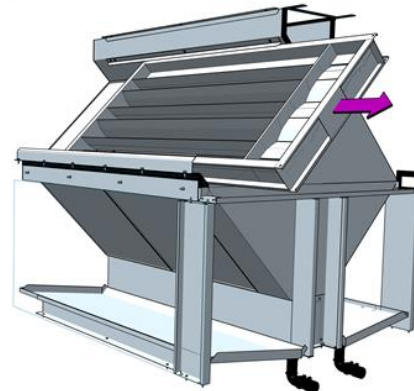
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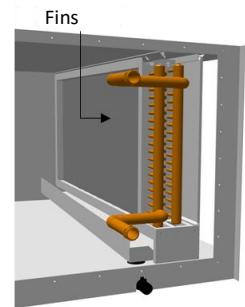
12



G. Hydraulic coil
1. Servicing

Fins

The coil fins must be cleaned using a low-pressure water jet or compressed air, which is injected in the opposite direction to the direction of the air flow.



Drip separators

The drip separator must be cleaned by spraying water over the blades. Open the drain valve and clean it with a water jet, then close it again.

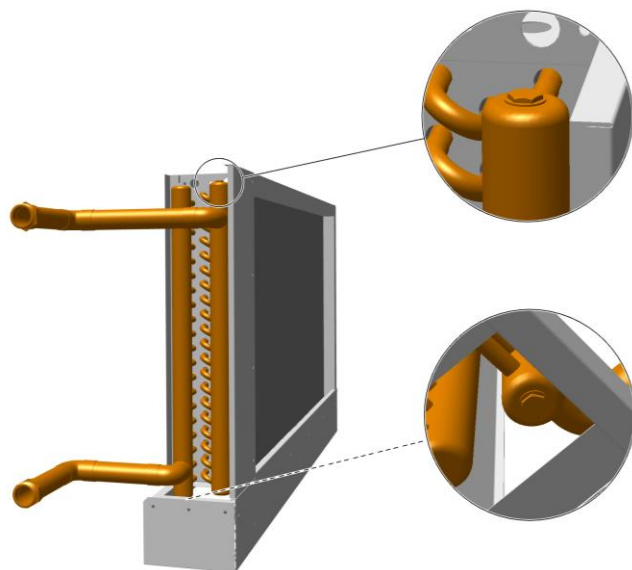
Condensate drip tray

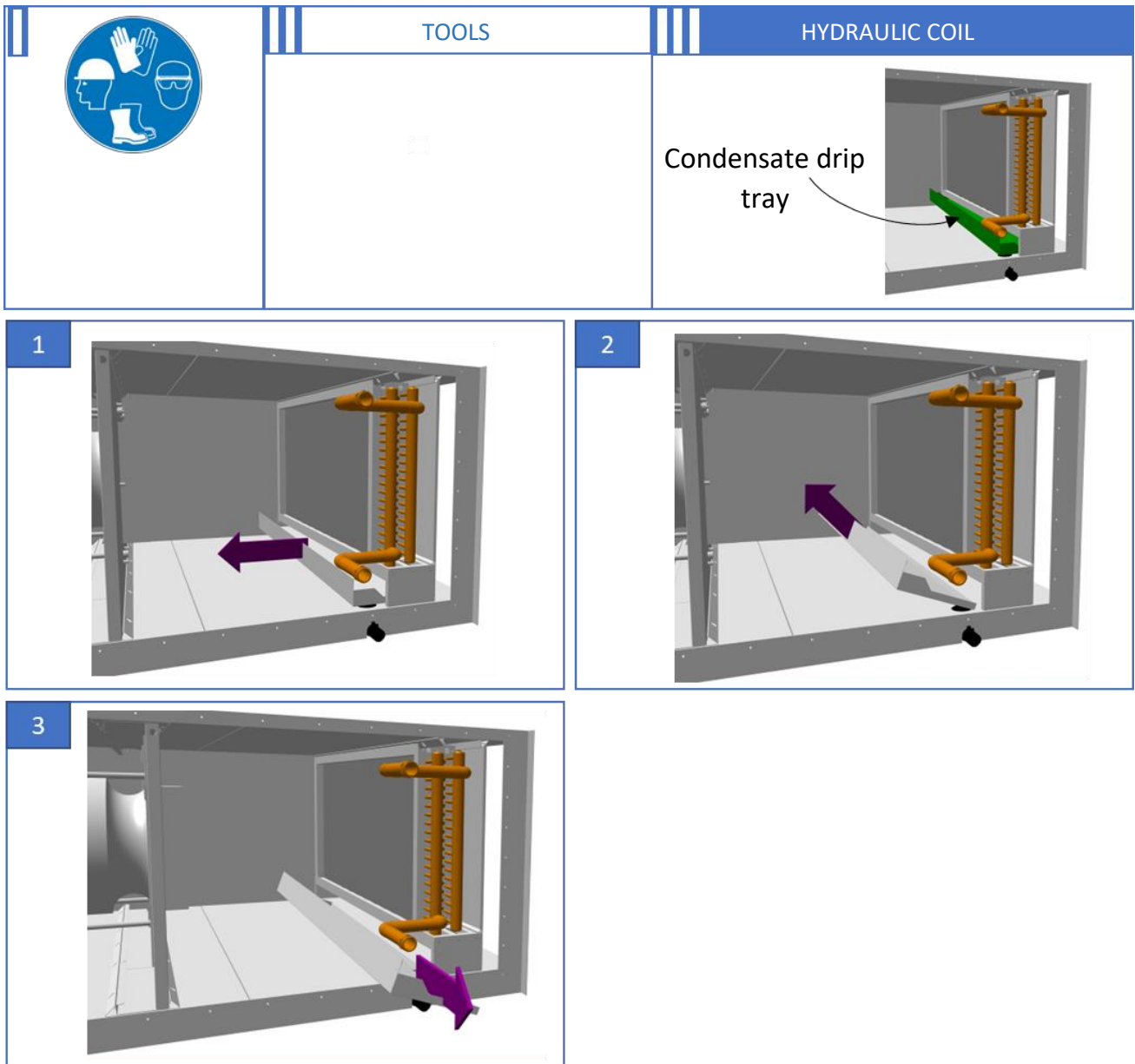
The condensate drip tray must be cleaned with a damp cloth.
If the tray can be removed, it can be cleaned with hot water and a mild detergent, then rinsed with clean water and dried, and then finally put back in place.

Bleeding

The hydraulic coil has two bleed plugs:

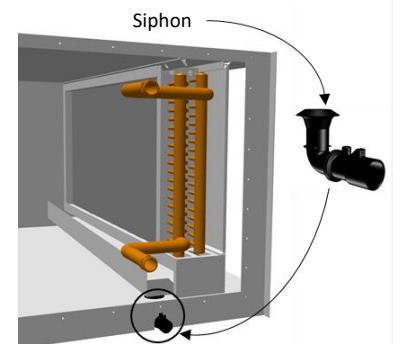
- The top one discharges the air from the coil
- The bottom one is used to drain the fluid from the coil.





Condensate discharge siphon

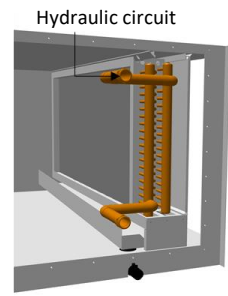
The siphon must be rinsed with water. A cloth can be used to remove residues from the siphon inlet and outlet. Make sure that the condensate drains properly, otherwise troubleshoot the issue.



Hydraulic circuit

The hydraulic circuit must be bled.

In the event of a prolonged stoppage, the hydraulic system must be completely drained.



2. Replacement

Before replacing the hydraulic coil, it must be completely drained.

	<p>TOOLS</p>	<p>HYDRAULIC COIL</p>
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1 Before any replacement:
BLEED THE COIL
DOOR MANUAL
Remove the door(s)

2 **DOOR FRAME MANUAL**
Remove the door frame(s)

3 **FIXED PANEL MANUAL**
Remove the fixed panel(s)

4 **CONDENSATE TANK MANUAL**
Remove the condensate drip tray

5

6

H. Fans

1. EC motor

a) *Servicing*

Vibration level

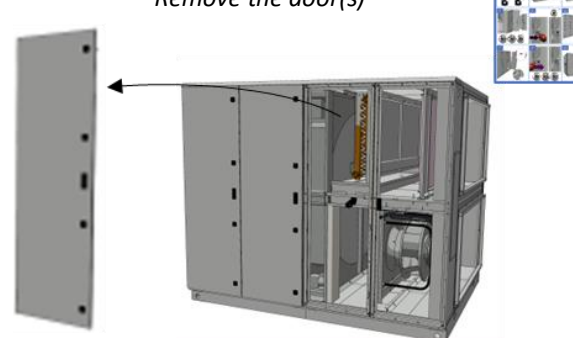
The vibrations emitted by the fans during operation must be checked and rectified if necessary.

b) *Replacement*

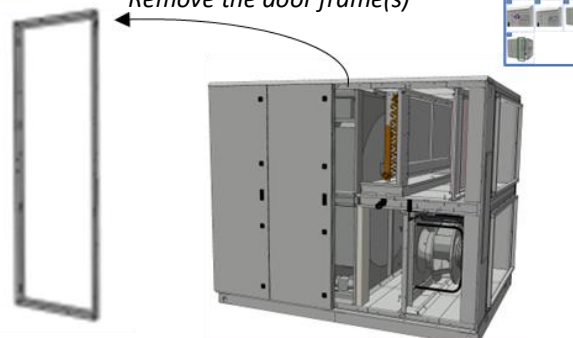
Method 1:

	<p style="text-align: center;">TOOLS</p>  <p style="text-align: center;">13</p>	<p style="text-align: center;">FAN: Plug fan - EC motor</p> 
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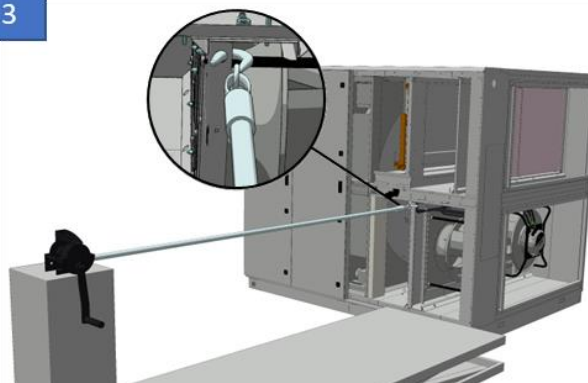
1 **DOOR MANUAL**
Remove the door(s)



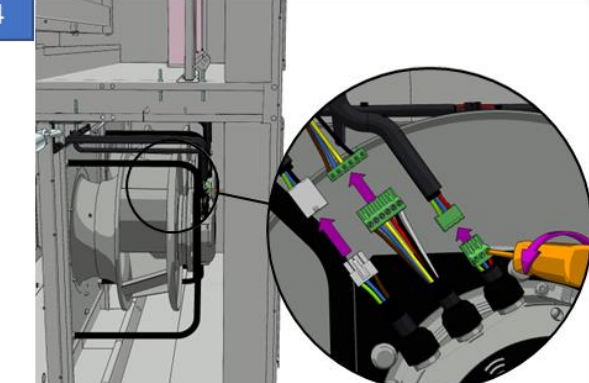
2 **DOOR FRAME MANUAL**
Remove the door frame(s)



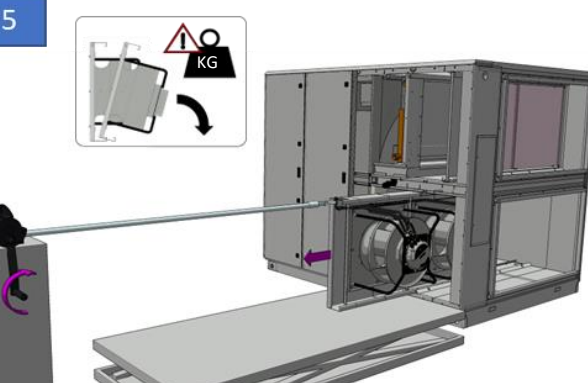
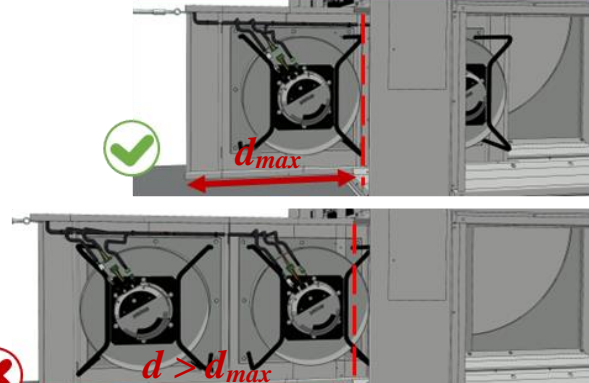
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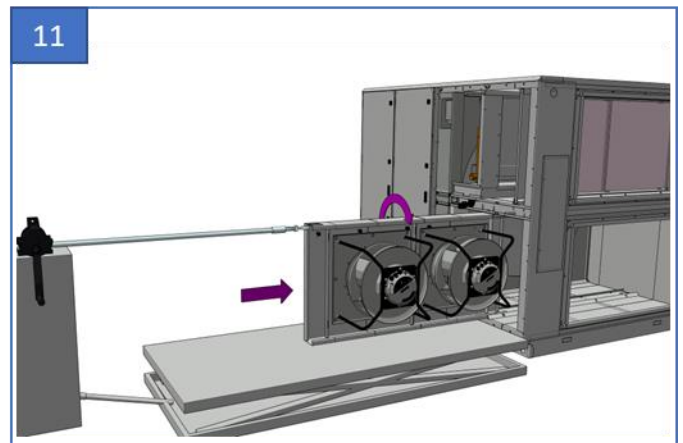
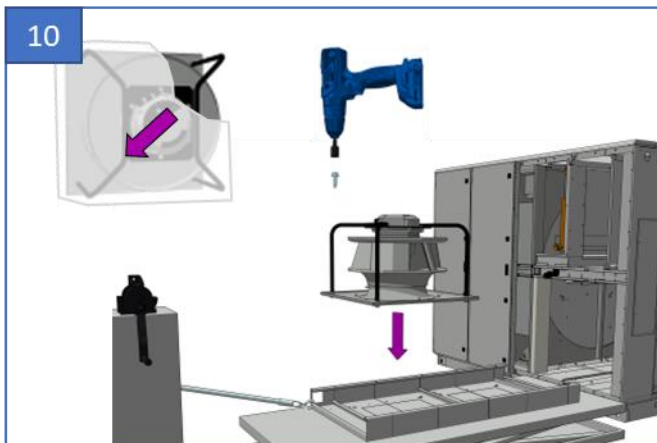
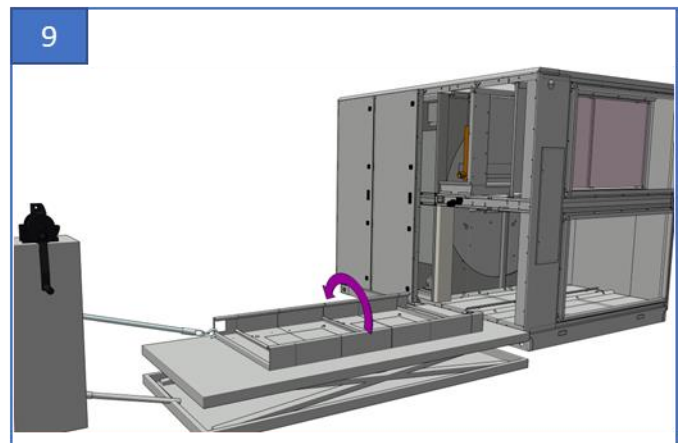
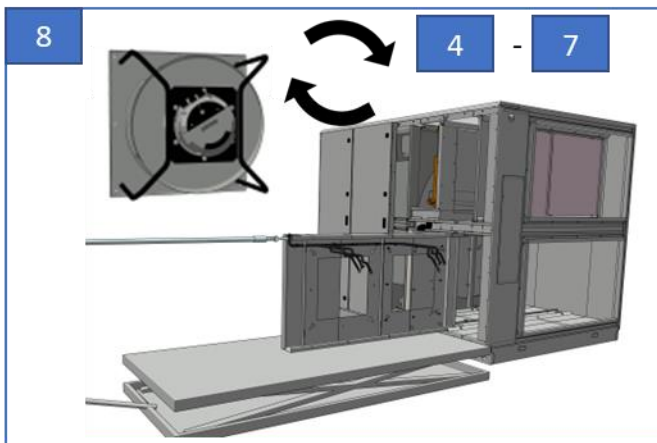
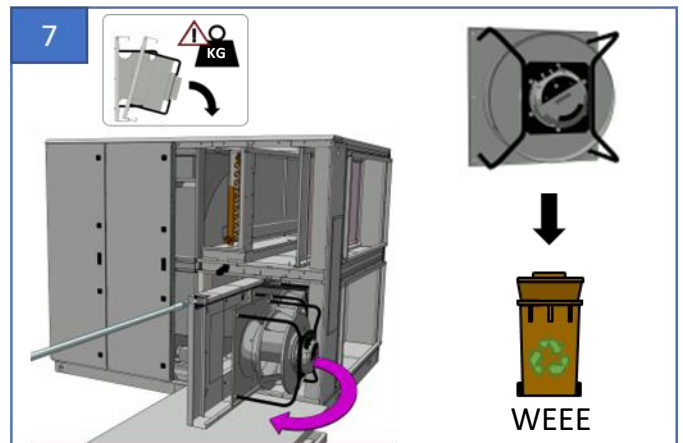
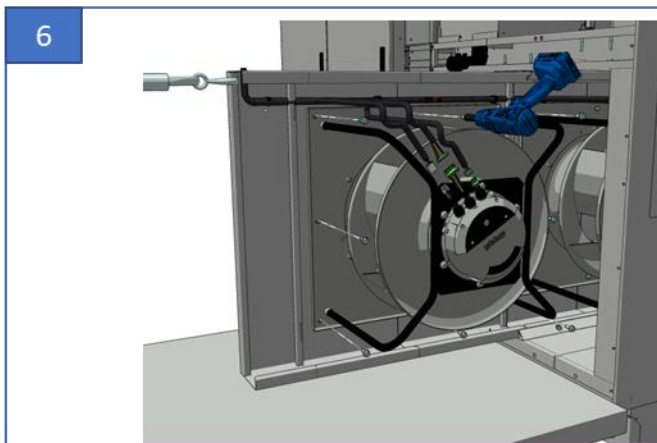
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	<p style="text-align: center;">TOOLS</p> <p style="text-align: center;">13</p>	<p style="text-align: center;">FAN: Plug fan - EC motor</p>
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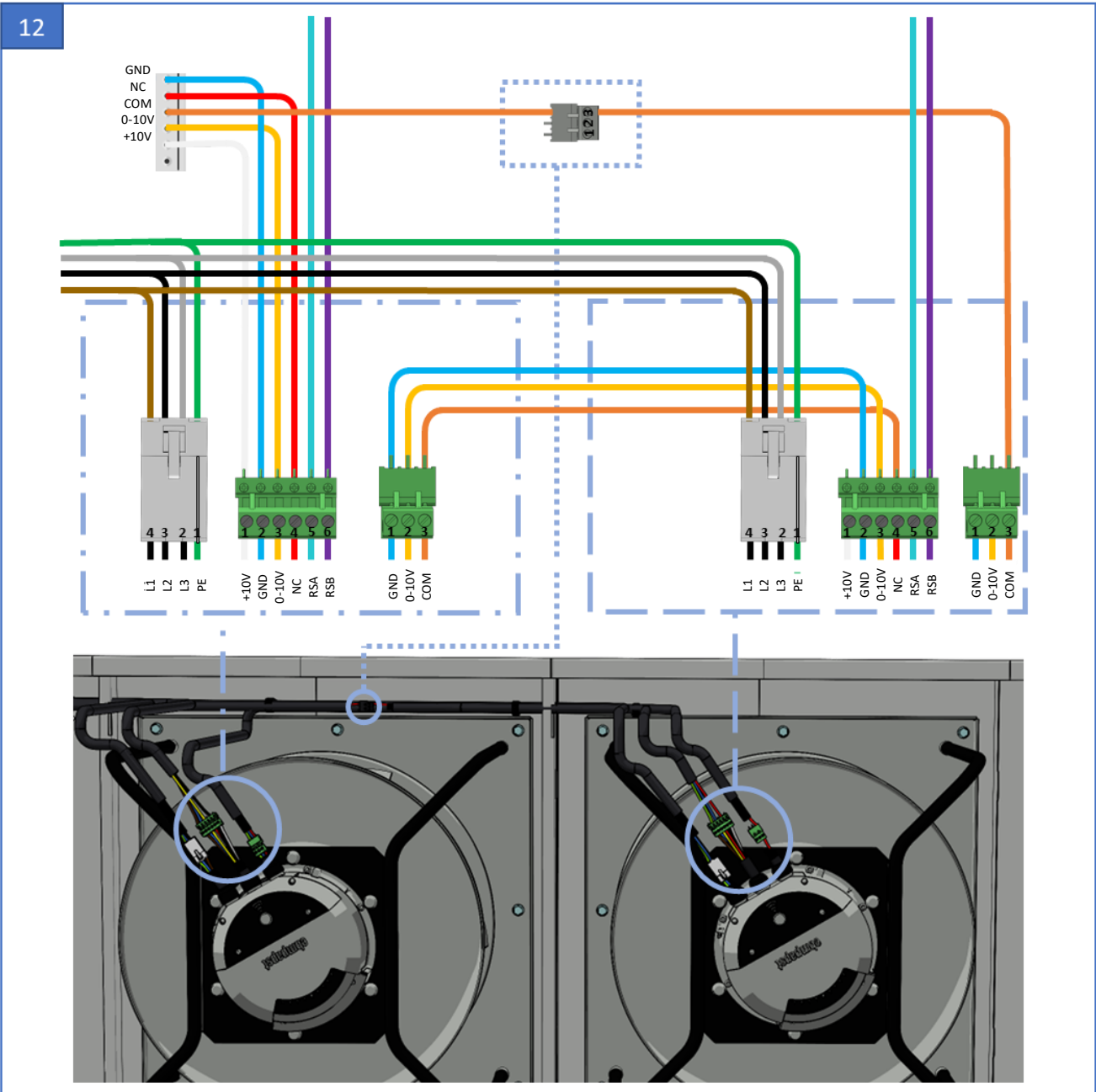
TOOLS





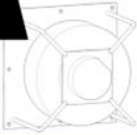
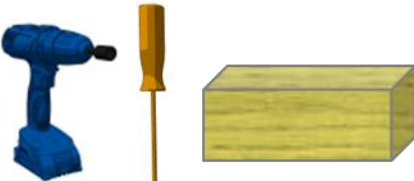
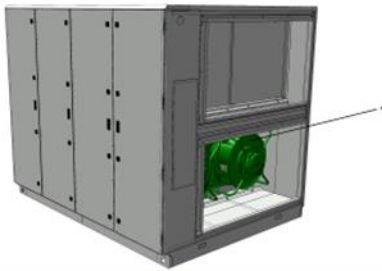
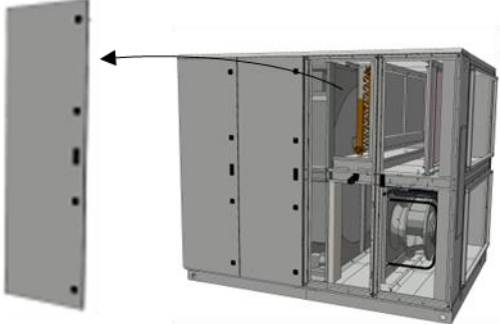

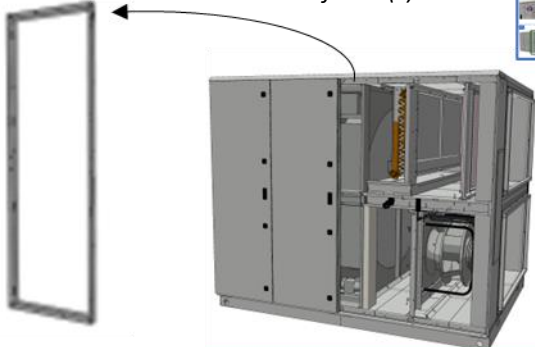

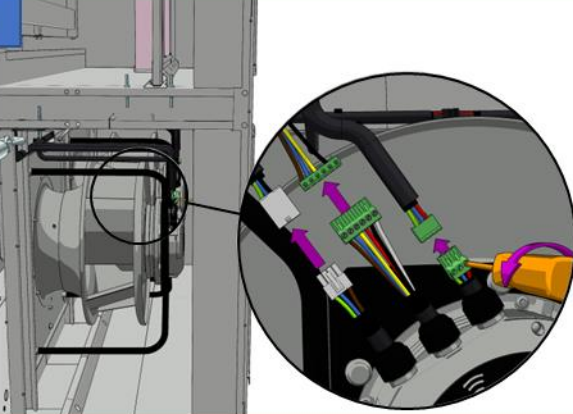
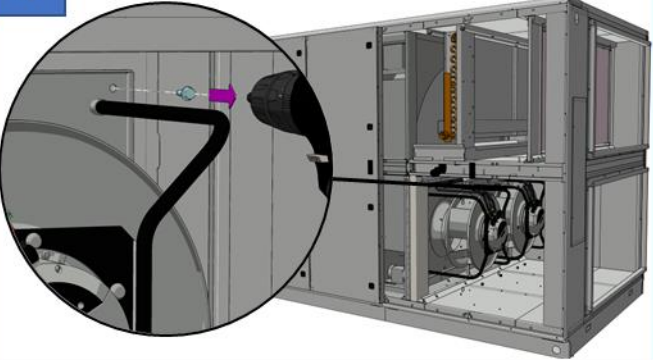
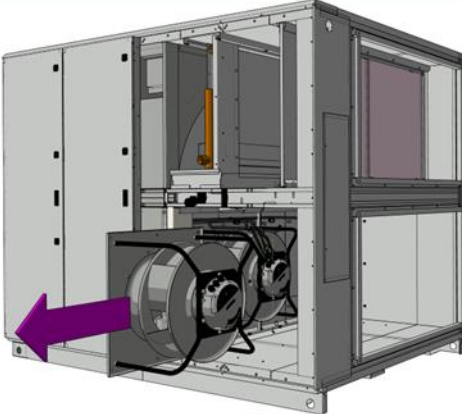
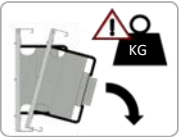
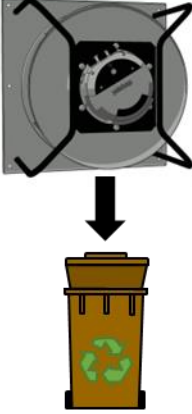
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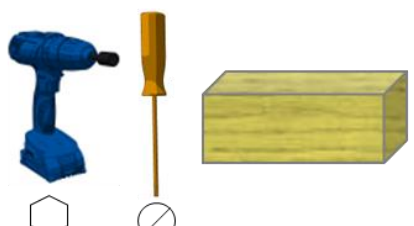
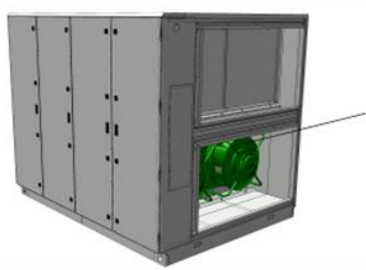
FAN: Plug fan - EC motor

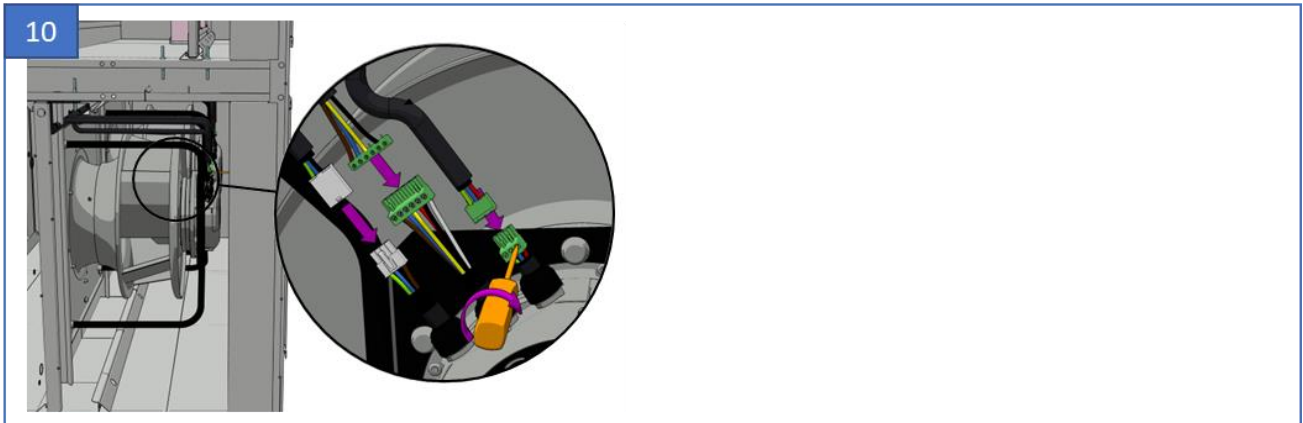
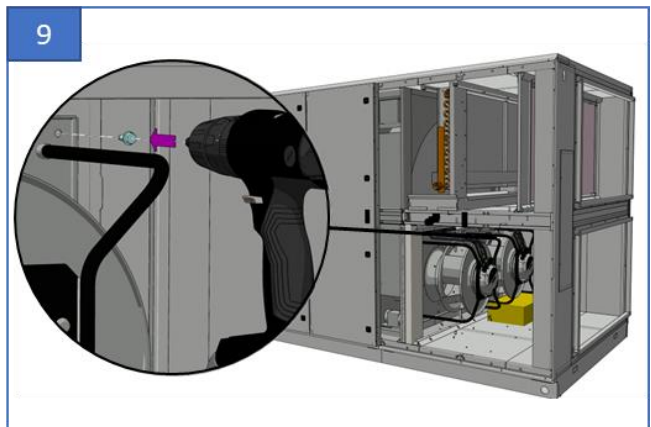
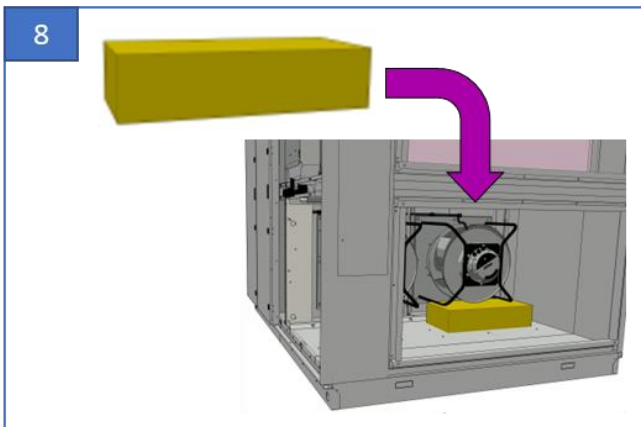
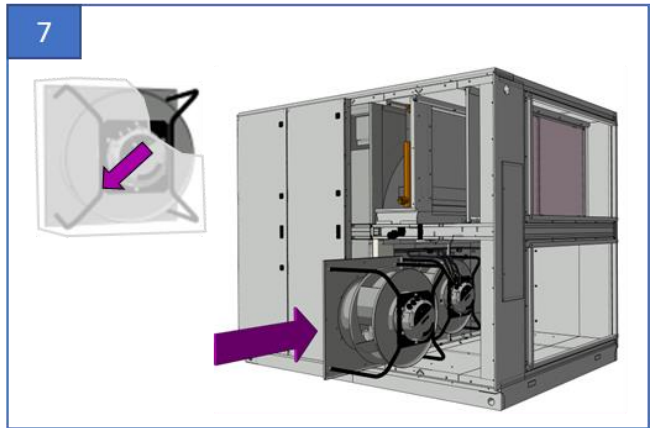
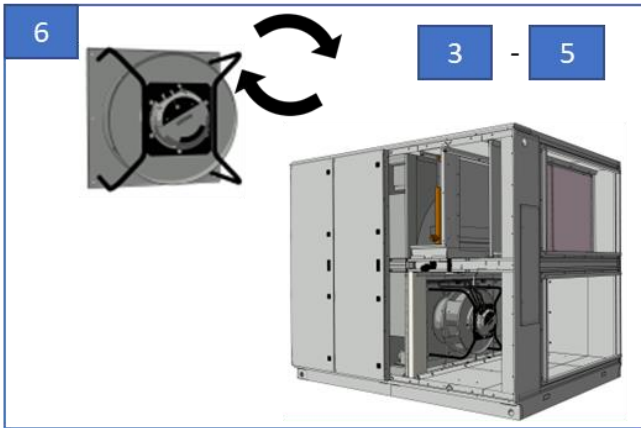




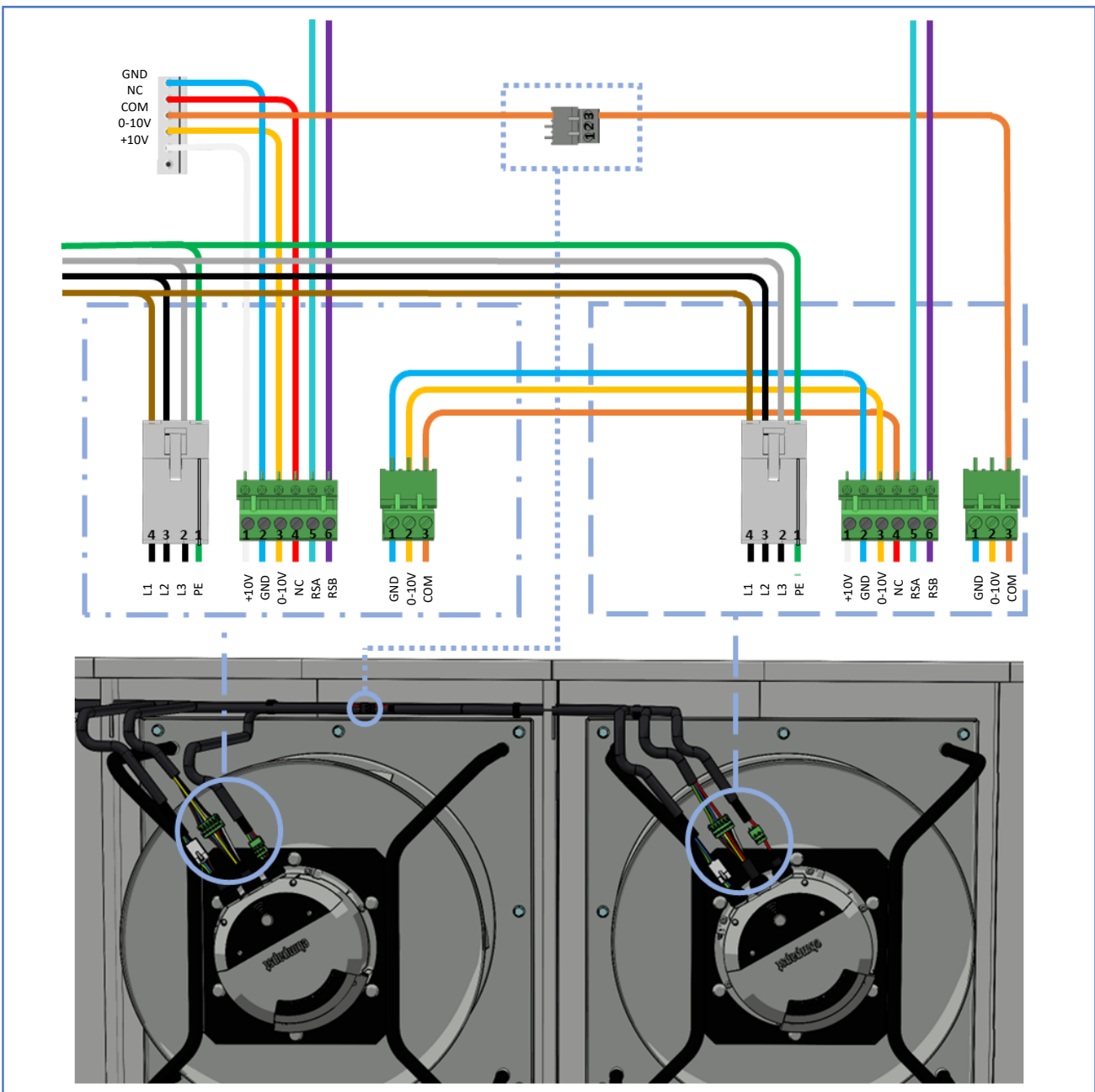
Method 2:

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<p style="text-align: center;">3</p> 	<p style="text-align: center;">4</p> 	
<p style="text-align: center;">5</p>  	 <p style="text-align: center;">WEEE</p>	

	<p>TOOLS</p>  <p>13</p>	<p>FAN: Plug fan - EC motor</p> 
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	<p style="text-align: center;">TOOLS</p> <p style="text-align: center;">13</p>	<p style="text-align: center;">FAN: Plug fan - EC motor</p>
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I. Summary table of inspections and servicing




Frequency	Component	Actions
1 WEEK	Motor fan unit	Check belt tension and condition
1 MONTH	FILTER	Inspect: <ul style="list-style-type: none"> • Check for clogging. Replace if necessary.
	DAMPER	In the case of a damper fitted with a servomotor, perform: <ul style="list-style-type: none"> • 5 opening/closing cycles with a 1-minute rest between each cycle.
3 MONTHS	TUNNEL	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check the door seals. • Check for clogging.
	Motor fan unit	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check the fasteners. • Check the lubrication of the bearings, if applicable. • Check the motor bearings, if applicable. • Check the tension and condition of the belts, if applicable. • Check the electrical connections. • Check the level of corrosion and repaint with anti-rust paint, if necessary.
	PLATE HEAT EXCHANGER	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check the bypass damper. • Check the siphon and condensate drain.
	ROTARY HEAT EXCHANGER	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check the direction of rotation of the impeller. • Clean the brush seal. • Check for clogging. • Check the motor. • Check the seals. • Check the belt.
	HYDRAULIC COIL	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check the drip separator. • Check the siphon, condensate drain and water level.
	ELECTRIC COIL	Inspect: <ul style="list-style-type: none"> • Visually check the components.
	SOUND TRAP	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check the condition of the baffles.
	DAMPER	Inspect: <ul style="list-style-type: none"> • Check for cleanliness. • Check operation. • Check the manoeuvrability of the moving parts.
	ELECTRICAL BOX	Inspect: <ul style="list-style-type: none"> • Visually check the cables and components.



		<ul style="list-style-type: none"> • Check operation.
	SENSORS	Inspect: <ul style="list-style-type: none"> • Check that the sensors are clean and in good condition.
6 MONTHS	ELECTRICAL BOX	<ul style="list-style-type: none"> • Check the connections.
	Motor fan unit	<ul style="list-style-type: none"> • Measure the fan vibration level and check that it does not exceed the maximum threshold.
1 YEAR	FILTER	<ul style="list-style-type: none"> • Replace the filters at least once a year (Every two years for absolute filters). • When replacement is required: Clean the section. • Check the seal between the filter and the frame.
	PLATE HEAT EXCHANGER	<ul style="list-style-type: none"> • Check that the bypass is working properly.
	HYDRAULIC COIL	<ul style="list-style-type: none"> • Check that the frost protection is working. • Bleed the hydraulic circuit.
	ELECTRIC COIL	<ul style="list-style-type: none"> • Check the temperature limiter.
2 YEARS	FILTER	<ul style="list-style-type: none"> • Replace the absolute filters at least once every two years.
WHEN NECESSARY	TUNNEL	<ul style="list-style-type: none"> • Clean.
	FILTER	<ul style="list-style-type: none"> • Replace the filters. • When replacement is required: Clean the section. • Check the seal between the filter and the frame.
	Motor fan unit	<ul style="list-style-type: none"> • Clean. • Replace the bearings if necessary. • Replace the belts, if applicable.
	PLATE HEAT EXCHANGER	<ul style="list-style-type: none"> • Clean.
	ROTARY HEAT EXCHANGER	<ul style="list-style-type: none"> • Clean.


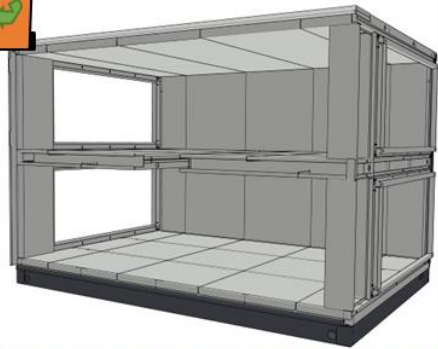


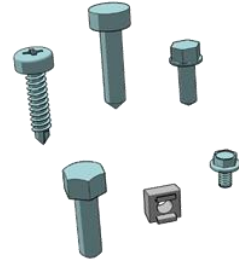
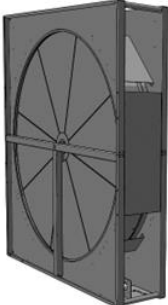

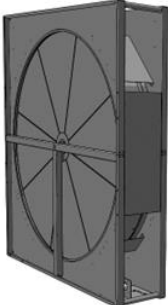
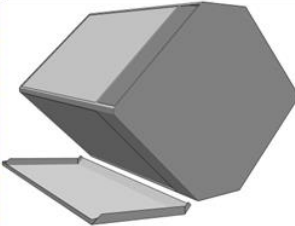
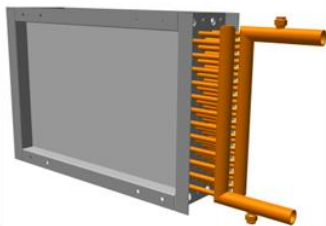
IX. Dismantling of unit and waste management





		TOOLS		RECYCLING	
					
					
					
					
<p>PLASTIC</p>	<p>METAL</p>	<p>Other OIW</p>	<p>WEEE**</p>		
<p>①</p> 	<p>②</p> 	<p>③</p> 	<p>⑧</p> 		
<p>④</p> 	<p>⑤</p> 	<p>⑦</p> 			
<p>⑧</p> 	<p>⑥</p> 				
	<p>⑨</p> 				
		<p>*OIW: Ordinary industrial waste</p>	<p>**WEEE: Waste Electrical and Electronic Equipment</p>		



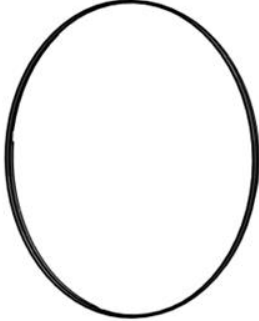
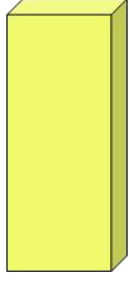
	TOOLS	RECYCLING
	 	<p>MC'X</p> 


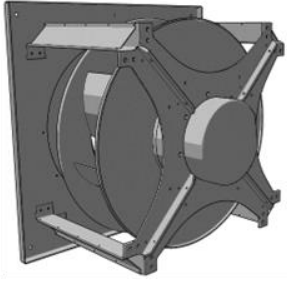
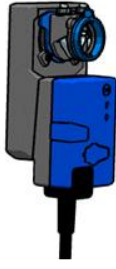


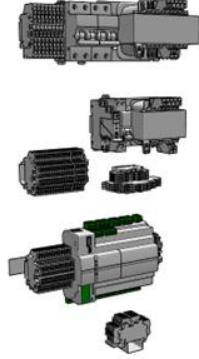
PLASTIC	
  <p>Damper drive system</p>	 <p>Rotary heat exchanger belt</p>

PAPER	
	

METAL				
 				
				

	TOOLS	RECYCLING
	 	<p>MC'X</p> 

 <p>Other OIW*</p>  <p>Treatment depends on the substances that have been filtered out</p>	 <p>Seals - Rubber</p>	 <p>Glass/rock wool</p>
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 <p>WEEE**</p> 	 <p>Servomotor</p>	  <p>Variable speed drive - Motor</p>	 <p>Control system - Sensors</p>
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MCX



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Hydronic is constantly striving to improve its equipment and reserves the right to make technical modifications without prior notice.