Chiller

GIANT

Vari

Installation, Operation, and Maintenance Manual

EN

N02541445 Rev. A

Chiller Oy will not assume responsibility for any errors or shortcomings that may appear in this document. The end user is responsible for ensuring that the unit operates appropriately and safely. Working with electric components is subject to permission. Always abide by the existing national legislation, regulations and standards.

Chiller Oy is constantly developing its products and reserves the right to change its products.

GIANT Vari™ is a registered trademark of Chiller Oy.

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Approvals and version history

REVISION	DATE	DESCRIPTION OF CHANGE	APPROVED BY
A	04.12.2020	First issue	MH

Contents

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1 General

1.1 About this manual

This Installation, Operation, and Maintenance Manual has been prepared as general instructions for appropriate installation, operation, and maintenance procedures. When operating the unit, always follow the precautionary instructions related to each component as well as the regulations and recommendations given by the local authorities.

The unit must be installed, operated, and maintained by a professional and in such a way that it does not cause danger to humans, the environment, or the unit itself. The unit must not be used for other than its intended purposes without a written consent from the manufacturer.

NOTICE

Before you start to install, operate, or maintain the system, read this manual carefully and familiarize yourself with all of the instructions.

Keep the manual for later reference.

1.2 Guarantee

The guarantee for this unit is based on Chiller Oy's terms of guarantee.

The guarantee becomes void, if:

- the product is modified or repaired without a written consent from Chiller Oy
- the unit parameters are modified without permission
- the configuration of the unit is changed
- the installation site, unit connections, installation ground, or installation procedures do not follow these instructions
- the instructions in this Installation, Operation, and Maintenance Manual are not followed.

The guarantee does not cover damages, if:

- the user does not follow the manufacturer's instructions
- the unit is used in a way that it is not designed for and that causes damage to the unit
- the unit is not maintained according to the schedule and instructions in this manual

Note! Warranty claims are processed only, if the complete type and serial numbers of the unit (see Section 3.3 Type plate) are notified to the manufacturer in written form.

1.3 Inspection of the unit

The units are shipped from the factory as assembled (apart from some accessories), wired, and tested.

When you receive the unit:

1. Inspect the delivery against the order.
2. Verify that the contents of the delivery meet the order.
3. Inspect all the delivered units carefully.

    a. If the units have transport damages, notify the expeditor and the seller of them.

    b. Record the transport damages on the bill of freight.

    c. Send a complaint about the damages to the transport company within 24 hours of delivery.

1.4 Related documentation

In addition to this manual, the unit is delivered with a unit-specific wiring diagram.

In case you need a new wiring diagram, you can order it. You need the unit serial number from the type plate for the order (see *Section 3.3 Type plate*).

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2 Safety

2.1 General safety instructions

This unit is designed so that it does not expose people to hazard or risk, provided that:

- The unit is installed, operated, and maintained according to the instructions in this manual.
- No structural changes are made to the unit.

2.2 Safety-related signs

These are the safety-related signs used in this manual.

DANGER

DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Note! Notes are used to indicate important information and useful tips.

2.3 Safety symbols

Hazard symbols

These symbols indicate a hazardous situation or action. Symbols are used to warn of situations, which can cause environmental damage and personal injury.

	General warning sign
	Electrical hazard

Prohibited action symbols

These symbols are used in warnings and notifications to indicate an action that should not be taken. The prohibited action symbols are shown below.

	Limited or restricted access
	Do not touch

Mandatory action symbols

These symbols are used in warnings and notifications to indicate an action that must be taken. The mandatory action symbols are shown below.

	Read the manual or instructions

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3 Unit overview

3.1 Introduction of the unit

The Giant fan coil unit is designed for room air conditioning. The unit is available in two sizes, Giant 700 and Giant 1300.

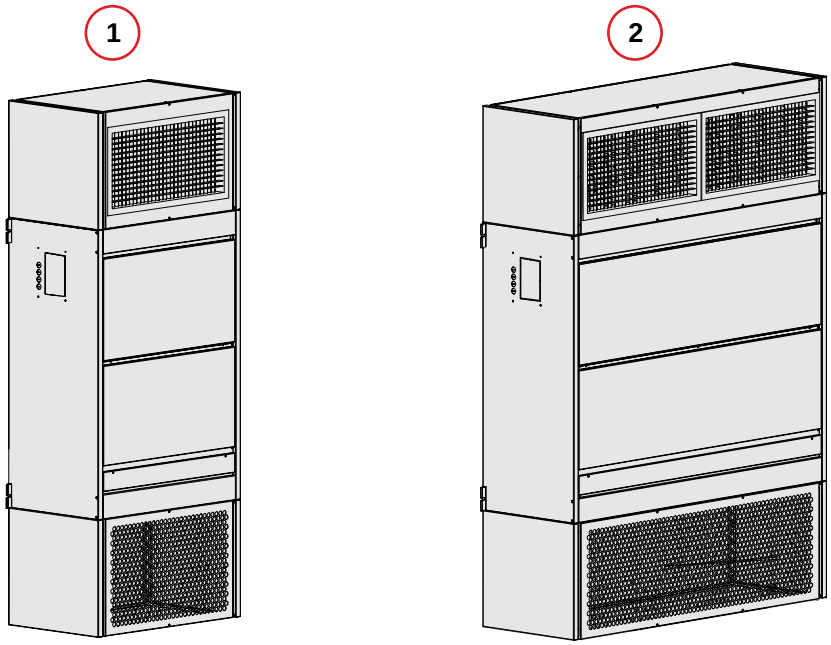

Figure 1: Available unit sizes

1. Giant 700
2. Giant 1300

Figure 2: Overview of the unit shows an example of the Giant 700 unit assembly.

The unit is available in left- and right-handed configurations. This refers to the side where the pipe connections are located, when you view the unit from the direction of the maintenance hatches.

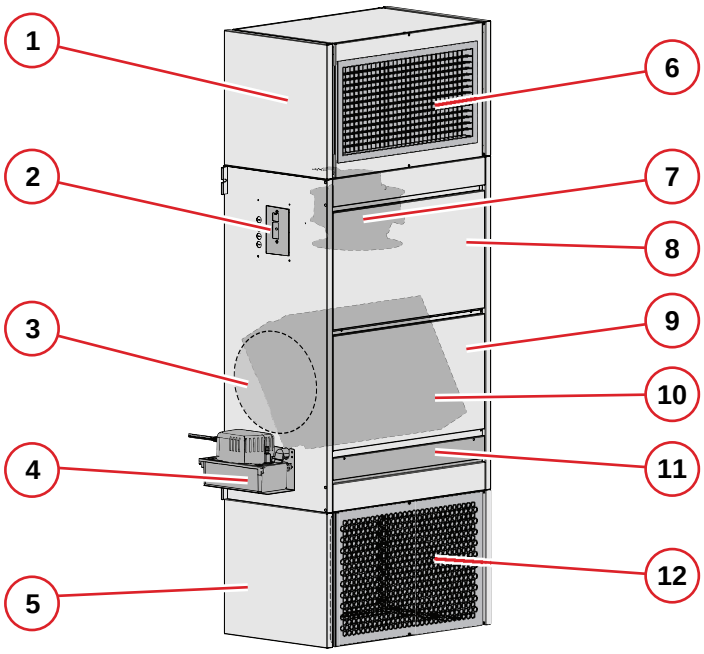

Figure 2: Overview of the unit

1. Exhaust chamber
2. Electrical box
3. Water connections
4. Condensation water pump or free drain outlet
5. Suction chamber
6. Pressure chamber grille
7. Fan
8. Maintenance hatch, fan
9. Maintenance hatch, coil
10. Coil
11. Maintenance hatch, filter
12. Suction chamber grille

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The unit is delivered with one of the following configurations: horizontal, upward, or downward air direction. The pressure and suction chambers are identical in size, which allows the air supply directions to be freely selected and adjusted.

- If the unit supplies air horizontally, mount the unit to the ceiling. For more information, see *Section 4.3 Mounting the unit to the ceiling*.
- If the unit supplies air upwards or downwards, mount the unit to the wall. For more information, see *Section 4.4 Mounting the unit to the wall*.

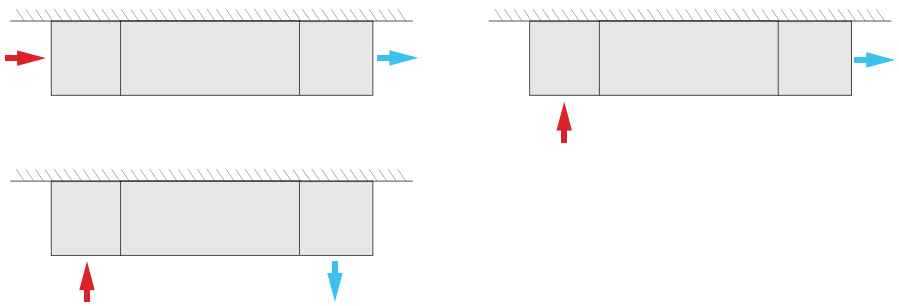

Figure 3: Options for air supply directions (ceiling, digit HZ)

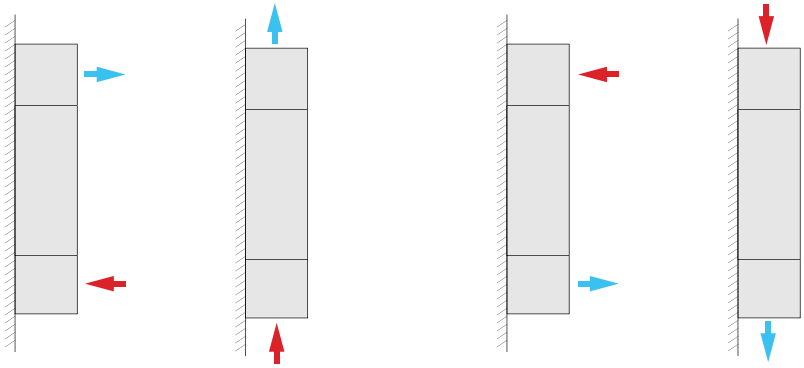

Figure 4: Options for air supply directions (wall, digit UP or DW)

*Note! You can find the air supply direction for the unit on the type plate. The air supply directions are marked **digit HZ / digit UP / digit DW**. For more information, see Section 3.3 Type plate.*

3.2 Unit dimensions

The unit comes in two sizes, Giant 700 and Giant 1300.

Note! The unit dimensions are given as reference. Chiller Oy reserves the right to make changes to them. Check the actual dimensions from the order documentation.

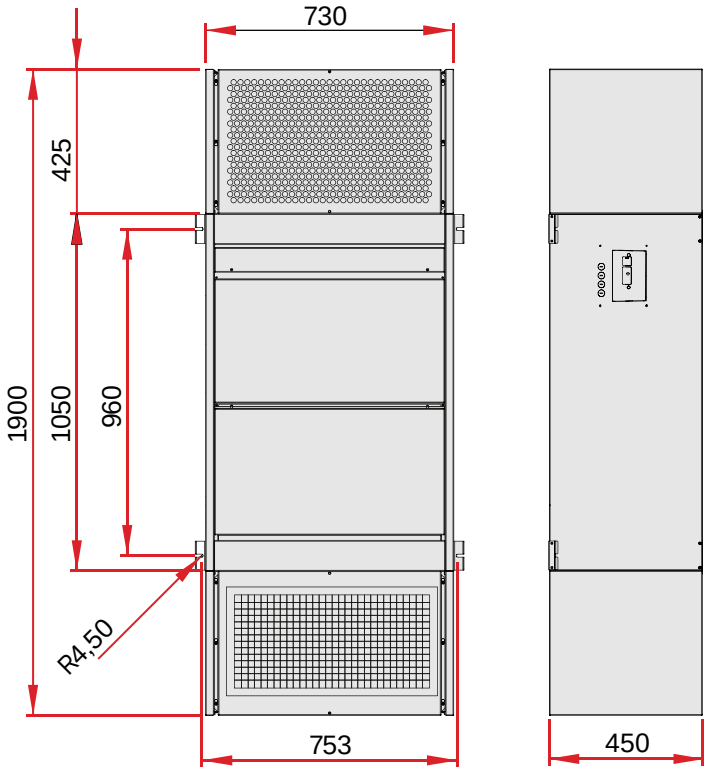

Figure 5: Main dimensions of Giant 700

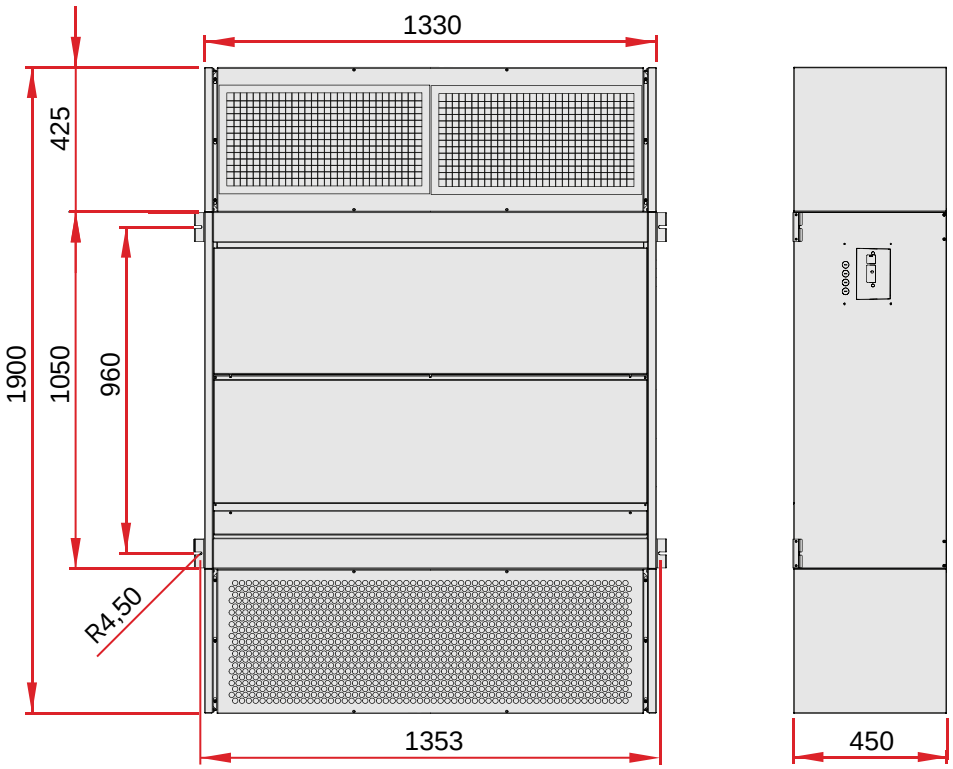

Figure 6: Main dimensions of Giant 1300

3.3 Type plate

Type plate is located next to the electrical box.

Note! Record the type plate information on the unit card and file it carefully. The type and serial numbers of the unit are required for identifying the unit when, for instance, purchasing spare parts.
When you order maintenance or order spare parts, you always need the serial number. You cannot make an order without the serial number.

The type plate specifies the following information about the unit:

TYPE	Unit type	Including accessories (18 characters consisting of letters and numbers)
SER.NR.	Unit serial number	Seven (7) number combination
POWER	Power type	230 VAC, 50 Hz
INPUT	Electrical information	Input power W and current A, max. values*: GIANT 700 / 460 W, 2 A GIANT 1300 / 920 W, 4 A
MANUF.DATE	Date of manufacture	
*The actual input power of the unit is usually below the max. value. For specific information, please contact your nearest reseller.		

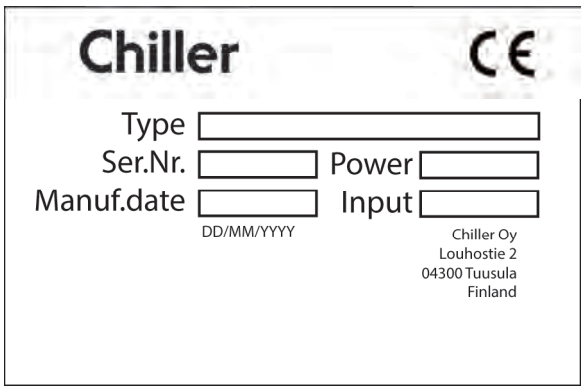

Figure 7: Example of the type plate

3.4 Automation options and control connections

The unit is available with the automation option Vari. Once the unit is delivered, you can see the automation type on the type plate (“Type”, unit type is Vari). The automation option of the unit affects the way the fan coil is controlled and what external equipment can be connected to the unit.

Note! Perform all electrical connections always according to the wiring diagrams supplied with the unit delivery.

Note! When connecting the alarm signal to the BMS, add a 30 s filter time to alarm management.

3.5 Vari-option

The automation option Vari has the following properties:

- Analogue control (0-10 V and 24 V AC/DC for on/off on all inputs)
- Suitable for analogue control from building automation or traditional room controller
- Potential free alarm contact, open in alarm or when unit not powered
- No additional sensor inputs or control outputs.

See *Appendix* for further details.

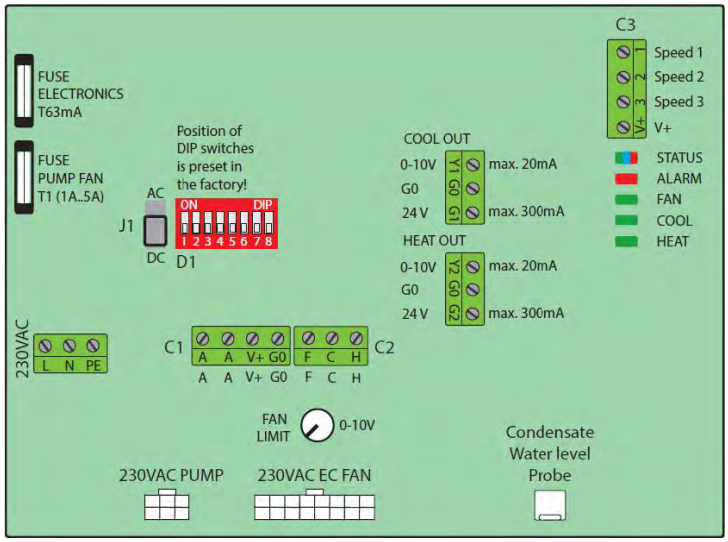

Figure 8: Vari control card

Wiring

Vari

A A	◀	Alarm out	Open in alarm or no power
V+ G0	◀ GND	24 VDC supply [max 100 mA]	UI power source
F	▶	Fan control input [0-10V] *	
C	▶	Cooling act. control input [0-10V / 24V] **	
H	▶	Heating act. control input [0-10V / 24V] **	
1	▶	Speed 1	24VDC inputs for fan speed selection
2	▶	Speed 2	
3	▶	Speed 3	
V+	◀	24V	24VDC power supply

* Factory configured fan rpm scaling.
** Input voltage autodetected.

Figure 9: Vari wiring instructions on the electrical box cover

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4 Installation of the unit

4.1 General installation instructions

CAUTION

Only professionally skilled and qualified personnel can install the unit.

Note! Always follow local safety regulations when you install, operate, and maintain the unit. Read these instructions carefully before installing the unit.

You can install the unit to the wall or to the ceiling, depending on the unit type.

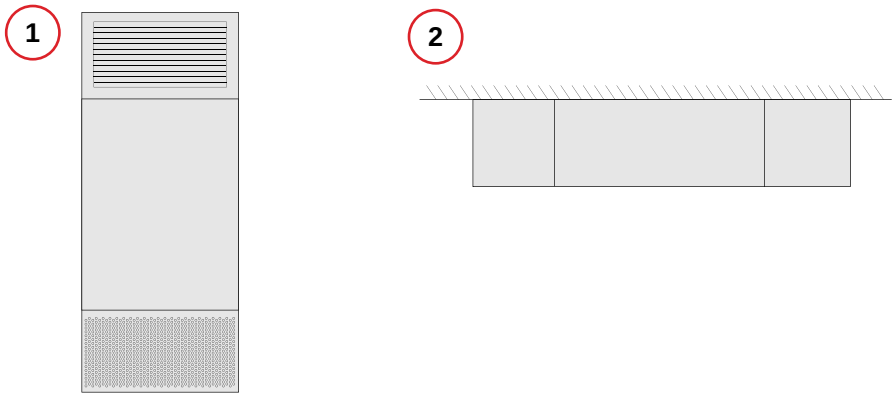

Figure 10: Installation options

1. Wall installation (unit digit UP / DW)
2. Ceiling installation (unit digit HZ)

When you install the unit, make sure that

- the unit is mounted to the ceiling or wall firmly and that it does not cause danger or harm to any person, object, structure, or equipment.
- all instructions given by the manufacturer and seller are followed.
- installation, lifting, and moving the unit is performed carefully.
- fire safety and the availability of fire equipment is ensured when performing welding or soldering operations.

Note! The manufacturer is not accountable for installations that have not been performed according to the installation instructions, or for using the unit in conditions that differ from those specified in Section 4.2 Choosing the installation site.

The installation concept "Install, Use, Maintain" is applied with this unit.

The installation order of this concept is:

- installation on the ceiling or wall
- pipe connections
- electrical connections
- testing and commissioning of the unit.

Note! Do not remove any of the coverings that protect the unit openings before the installation is complete and all dust has been cleared.

4.2 Choosing the installation site

When you choose the installation site for the unit, make sure that you leave enough space around the unit for maintenance work. You can see the dimensional requirements for the service area in *Figure 11: Service area requirements*.

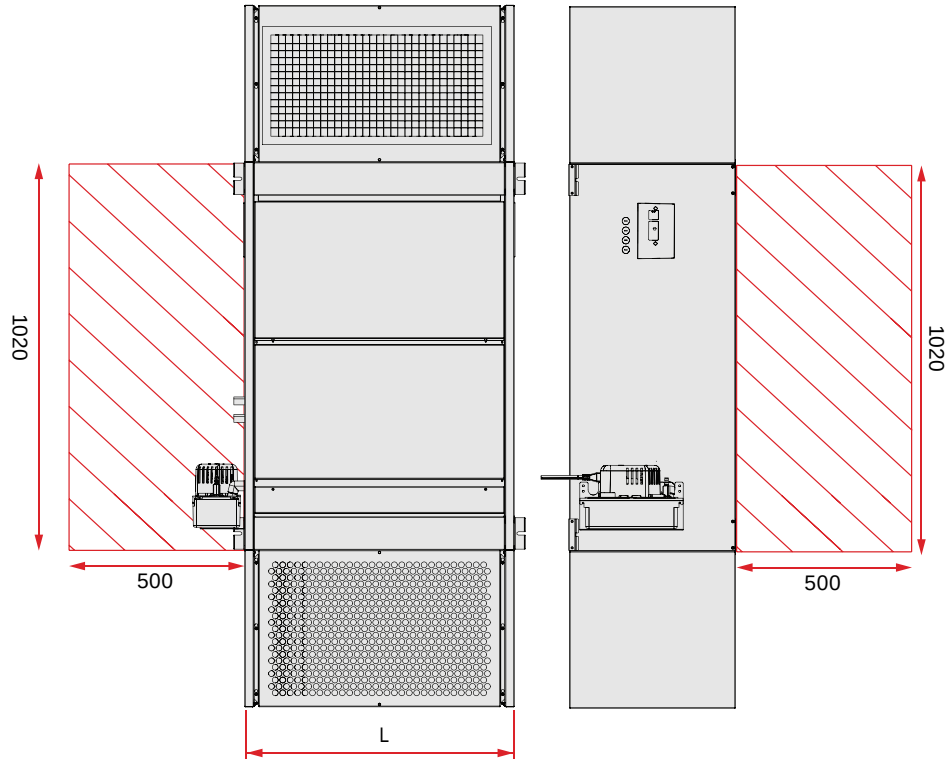

Figure 11: Service area requirements

Note! Always take local safety regulations and installation requirements into account when choosing the installation site and before starting the installation.

Note! The dimension marked L varies depending on the unit type.

Take also the following matters into consideration, when choosing the installation site:

- the requirements for the service room and the safety requirements for the unit and its accessories must be complied with.
- the installed unit must be mounted in a level position.
- the unit must not be installed above any other units or equipment.
- the unit must not be installed in a room that has flammable or explosive substances or has airborne substances that corrode PVC plastics, EPS plastics, ABS plastics, copper, or aluminium.
- the unit must be installed in the room so that it allows free air circulation in the unit.

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- the unit must not be installed in a room where recirculation air can bring such substances to the inlet opening of the unit that block air circulation (for instance greases from the kitchen).
- the installation and maintenance room required for electrical installations, pipe-laying, and installation of sewerage for condensation water.

Table 1: Limitations for the GIANT installation site

Temperatures	Min.	Max.
Indoor air	5 °C **(A)**	32 °C
Water	4 °C **(B)**	80 °C **(C)**
Ethyl alcohol (35%)	4 °C	80 °C
Ethylene glycol (35%)	4 °C	80 °C
Propylene glycol (35%)	4 °C	80 °C

Notes.
A If the room temperature is below 0 °C, the unit must be drained of water and the condensation water must be removed.

B For lower temperatures, using anti-freeze agent is imperative.

C The maximum water pressure is 1000 kPa/10 bar.

You can find the main dimensions of the unit in *Section 3.2 Unit dimensions*.

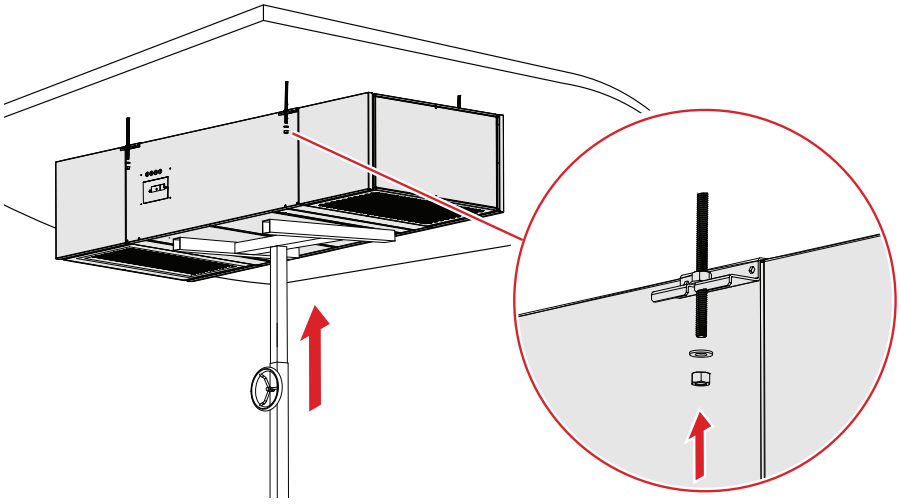
4.3 Mounting the unit to the ceiling

The unit is mounted to the ceiling from four (4) mounting points. The mounting points are integrated in the unit frame. Use M8 fasteners, when you mount the unit to the ceiling.

DANGER

Risk of severe injury. Make sure you attach the unit firmly to the ceiling. If the unit is not properly attached, it can fall and cause severe injury.

1. Install the unit to the ceiling from the four (4) mounting points.



2. Use supports to mount the unit to the ceiling. Make sure that you use supports that are suitable for the installation site and the ceiling material.

Note! The supports must be strong enough for the max. weight (GIANT 700 = 115 kg / GIANT 1300 = 185 kg) of the unit.

Note! Do not hoist the unit from pipe joints, valves, or the condensation water basin. You can hoist the unit to the ceiling by using a lift, or similar.

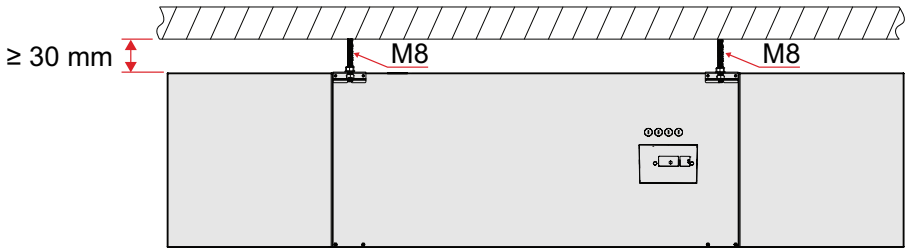
WARNING

Use a hoist that is rated to handle the weight of the unit.

a. If you use threaded bars for supporting the unit, you must secure the joint between the threaded bar and the support with locknuts and washers.

b. Make sure that the bars are attached tightly to the ceiling and they do not come off.

3. Make sure that the distance between the unit and the ceiling is at least 30 mm.



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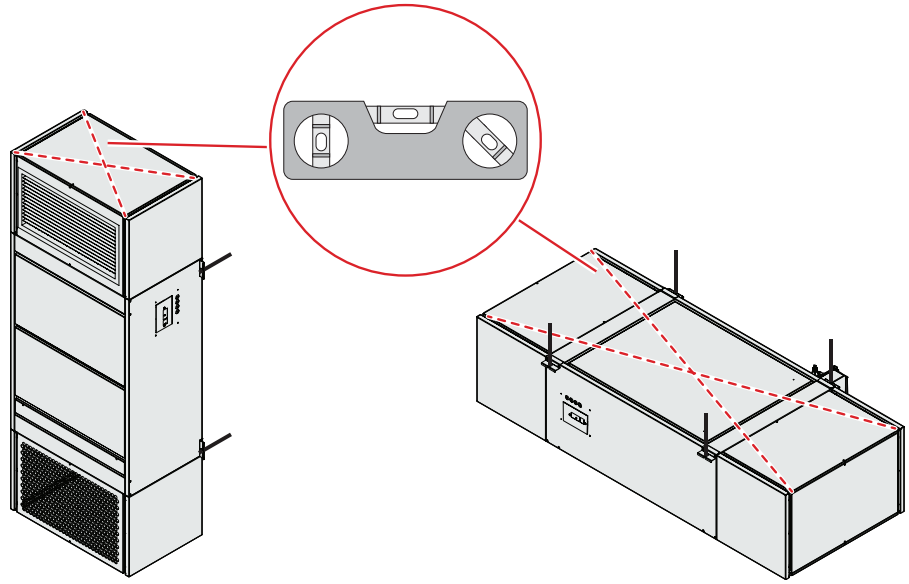
4. After you have mounted the unit to the ceiling, use a spirit level to make sure that the unit is horizontally leveled.

CAUTION

The unit must be leveled. If the unit is not leveled properly, the condensation water will run in a wrong way and this can damage the unit or surroundings.



5. Install the accessories (control valves, shut-off valves, external drain pan etc.), if they are delivered as separate items.

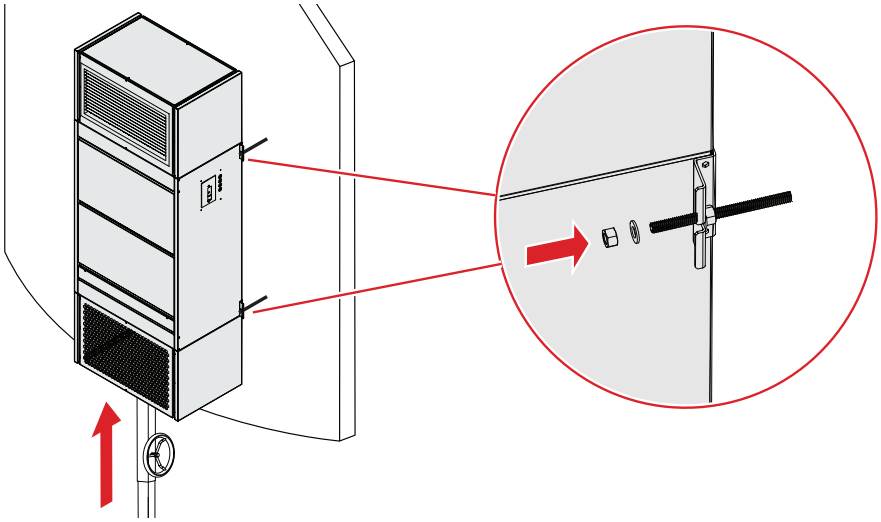
4.4 Mounting the unit to the wall

The unit is mounted to the wall from four (4) mounting points. The mounting points are integrated in the unit frame. Use M8 fasteners, when you mount the unit to the wall.

DANGER

Risk of severe injury. Make sure you attach the unit firmly to the wall. If the unit is not properly attached, it can fall and cause severe injury.

1. Install the unit to the wall from the four (4) mounting points.



2. Use supports to mount the unit to the wall. Make sure that you use supports that are suitable for the installation site and the ceiling material.

Note! The supports must be strong enough for the max. weight (GIANT 700 = 115 kg/ GIANT 1300 = 185 kg) of the unit.

Note! Do not hoist the unit from pipe joints, valves, or the condensation water basin. You can hoist the unit to the wall by using a lift, or similar.

WARNING

Use a hoist that is rated to handle the weight of the unit.

a. If you use threaded bars for supporting the unit, you must secure the joint between the threaded bar and the support with locknuts and washers.

b. Make sure that the bars are attached tightly to the wall and they do not come off.

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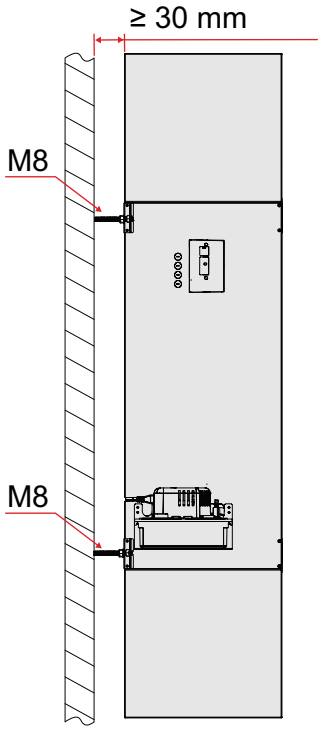
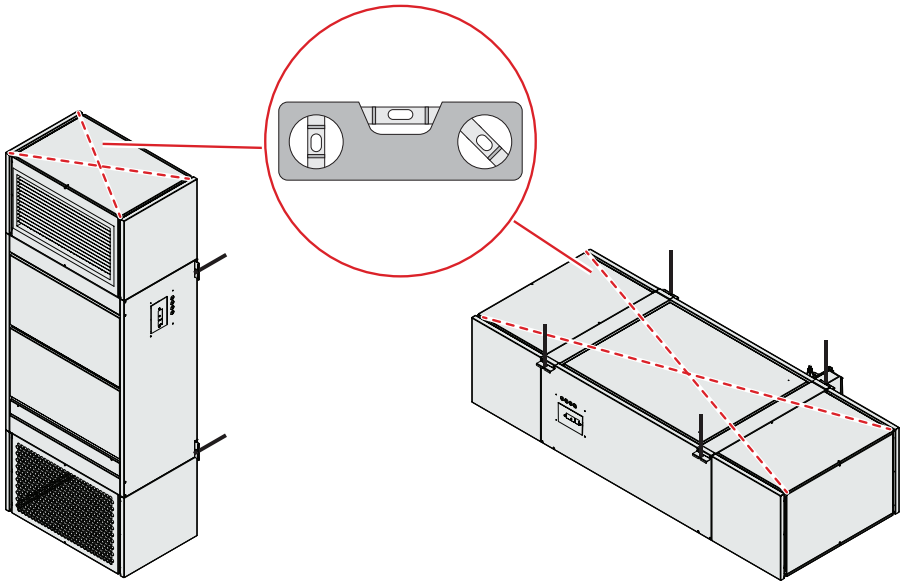
3. Make sure that the distance between the unit and the wall is at least 30 mm.



4. After you have mounted the unit to the wall, use a spirit level to make sure that the unit is horizontally leveled.

CAUTION

The unit must be leveled. If the unit is not leveled properly, the condensation water will run in a wrong way and this can damage the unit or surroundings.



5. Install the accessories (control valves, shut-off valves, external drain pan etc.), if they are delivered as separate items.

4.5 Attaching the water connections

The unit is intended to be connected to a cooling and/or heating water circulation that cannot damage the heat exchanger. More detailed information on water connections are specified separately for each order, depending on the accessories selected.

Note! Connecting the unit to the water circuit causes pressure losses. For information on unit type-specific pressure losses in the water circuit, please contact the manufacturer.

Note! Do not circulate water in the unit if the power supply is off.

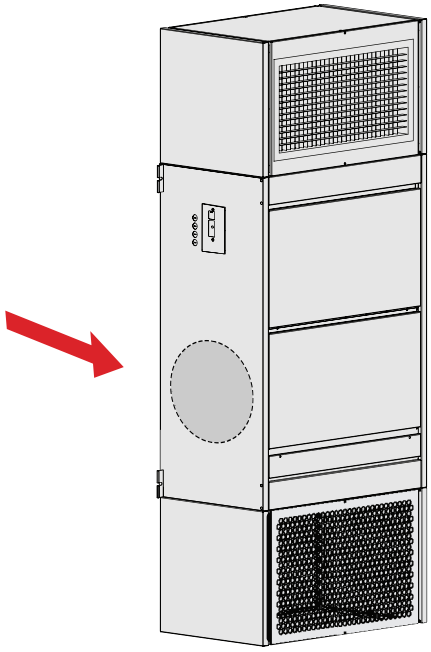


Figure 12: Water connections of the unit

1. Before you connect the unit to a cooling and/or heating water circulation, make sure that the water in the water circuit has

   a. a maximum operation pressure of 10 bar

   b. a minimum temperature of +4 °C (inlet water)

Note! Water must never be allowed to freeze inside the coil, condensate basin, or piping of the unit.

   c. a maximum temperature of +80 °C (inlet water).

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2. Attach the water connections. The water connections are on the same side of the unit as the electrical box.

Note! The order of the water connection points depend on the unit configuration, they are marked on the unit at the factory before delivery. See the correct connection points from the delivered unit.

Note! Depending on the unit configuration, you may have to use flat seal connectors. If you use them, make sure that the connector material is suitable for the connector type. Incorrect connector materials can damage the connection sets in the unit.

Note! Always use two wrenches when tightening the connections to avoid transmitting loads to internal pipework. Failure to do so can cause severe damage to the coil or internal pipework.

4.6 Installing sewerage for condensation water

The factory-made Giant unit is available without or with (optional) condensation water pump.

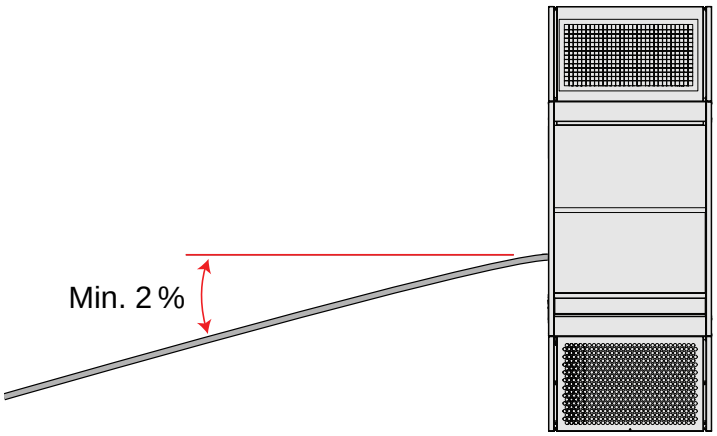
Note! Always follow the national construction regulations when you install the sewerage.

For further information on installing the sewerage for condensation water, see *Sections 4.6.1 Sewerage without condensation water pump* and *4.6.2 Sewerage with condensation water pump (option)*.

4.6.1 Sewerage without condensation water pump

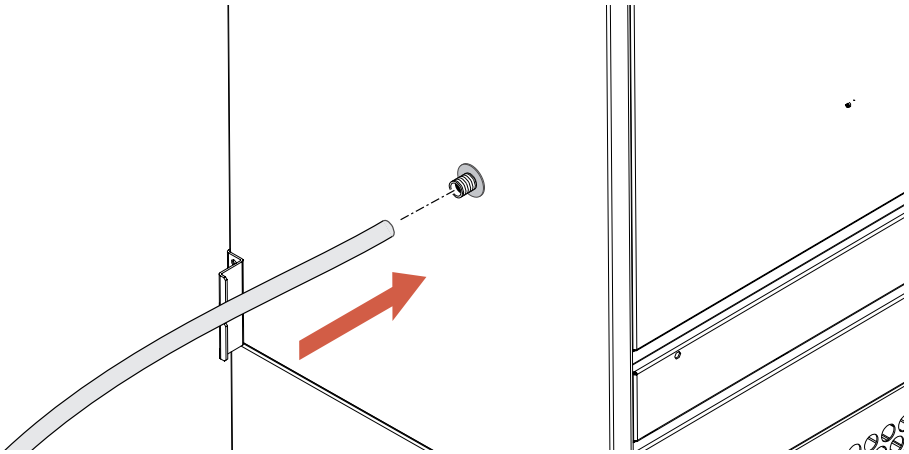
When you install the sewerage, make sure that:

1. the sewerage has sufficient inclination of at least 2%.



2. you attach the pipe for the condensation water properly and the pipe is the correct size.

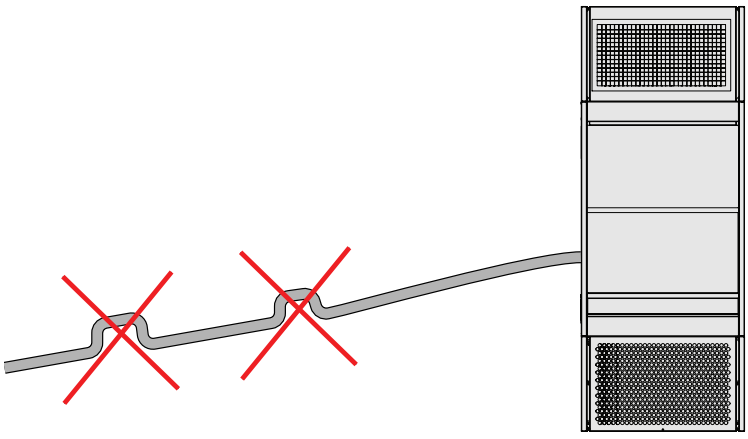
Note! The pipe is attached with a G1/2" fitting.



WARNING

Do not use excessive force when connecting free drainage outlet as this can damage the unit and cause leakage.

3. the pipe is not bent or dented. If it is, this can decrease the flow rate or stop the flow.



4.6.2 Sewerage with condensation water pump (option)

The Giant unit is available with a condensation water pump for a rise of 5 m (5000 mm). The pump pressure side has an outlet (plastic, outer diameter 10 mm). Units with a pump are supplied with a sewerage fitting.

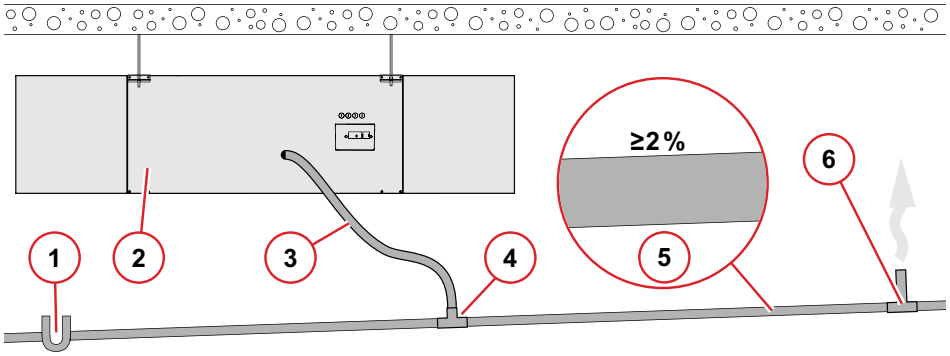
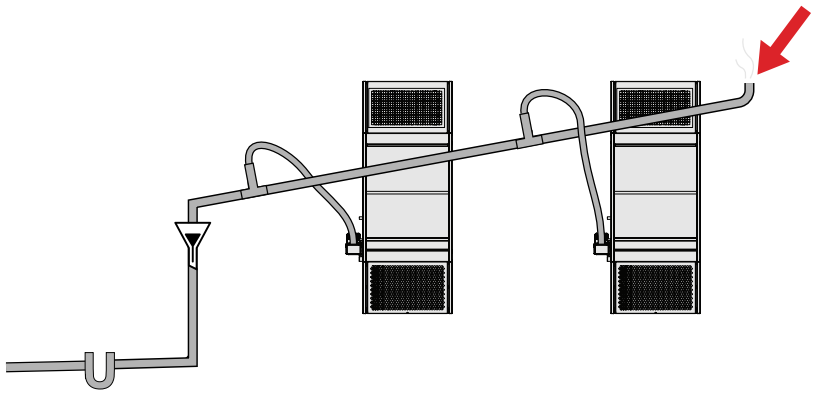


Figure 13: Overview of sewerage with condensation water pump

1. Drain trap
2. Unit
3. Condensation water hose
4. Drain connection
5. Condensation sewerage
6. Supplementary air

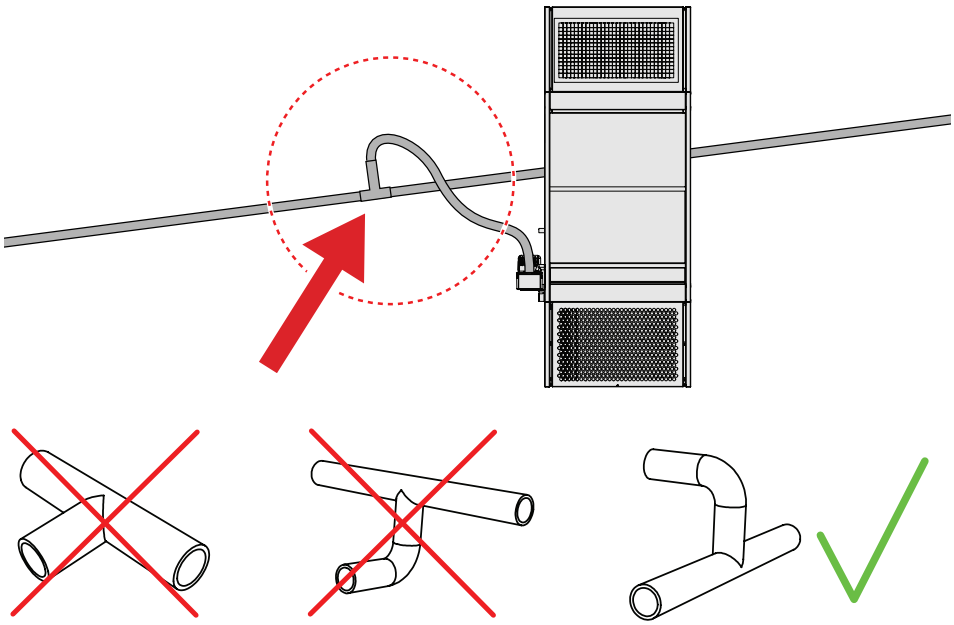
Before you install the sewerage, make sure that

- the cross-sectional area of the condensation water network is sufficient.
- the cross-sectional area of the condensation water pipe is sufficient, at least 22 mm.
- you install a drain trap to the condensation water pipeline, if condensation water is directed to the sewerage system of the property. The drain trap is dimensioned according to the installation height to ensure that water is constantly discharged at a sufficient rate.
- the condensation water pipe is insulated, if the unit is installed in rooms where condensation can occur on the pipe surface.
- you support the condensation water pipe so that it does not bend at any place.
- you take into account the availability of supplementary air, when planning the sewerage.

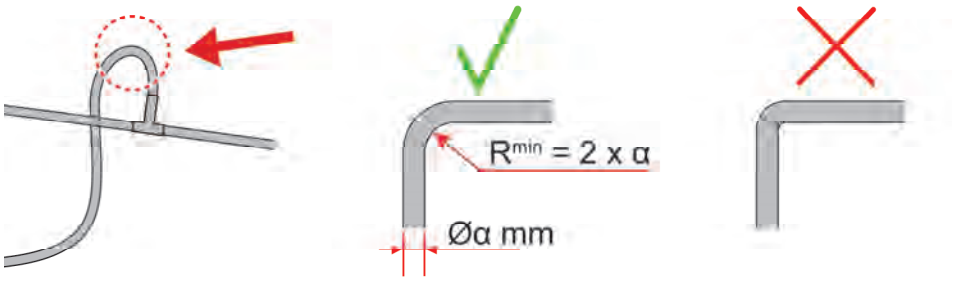


When you install the sewerage, make sure that

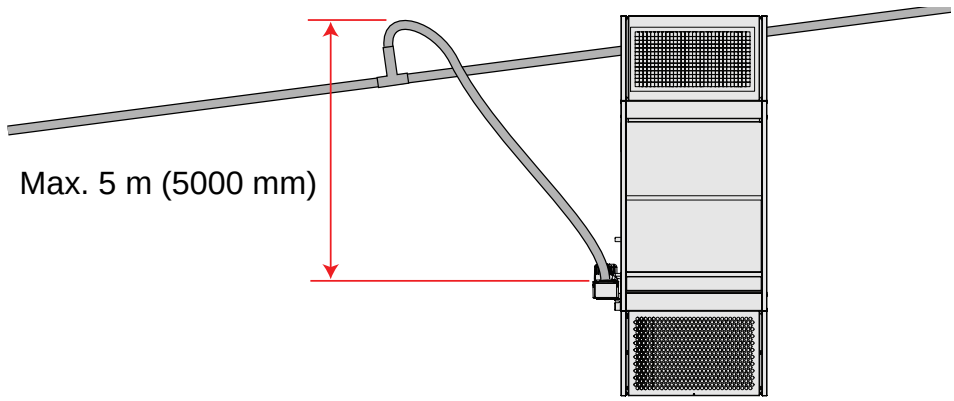
- you connect the condensation pump hose to the sewerage from the upper side.



- the minimum radius of the hose is sufficient.



- the rise for the condensation water pump is max. 5 m (5000 mm).



- you connect the unit to the sewerage with a stiff pipe (such as Cu or PVC).

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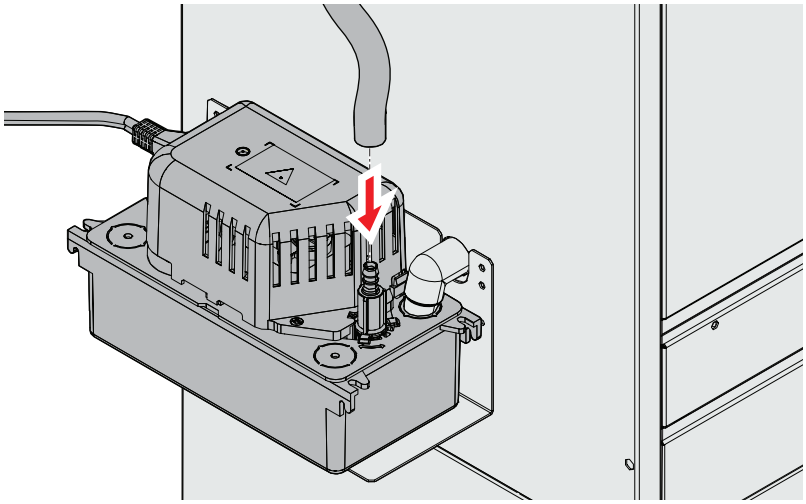


- you connect the pump hose tightly to the piping, so that the pressure variations caused by the condensation water pump do not remove the hose from the pipe.

Note! Do not push the hose too far into the sewerage pipe. The hose's end should be about 30–50 mm inside the seal.

- you cut the hose to a suitable length.

Note! Do not extend the condensation water hose with another hose.

Connection to sewerage:

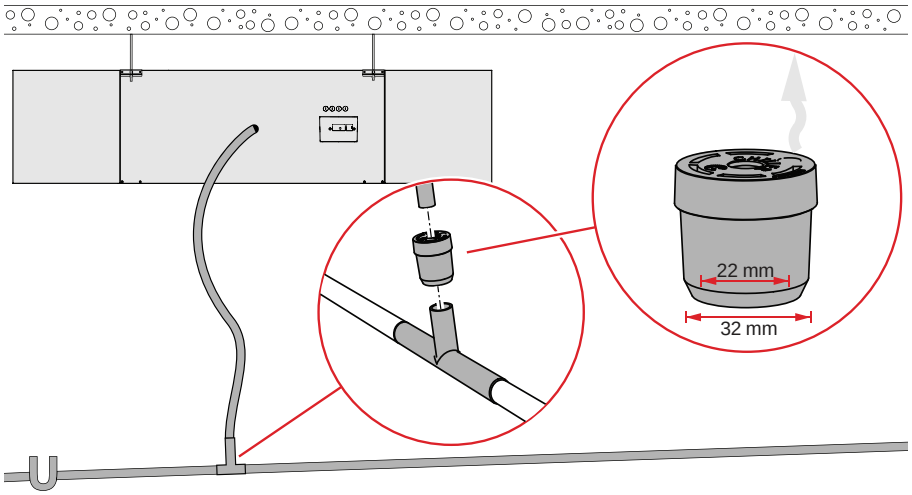
1. Pull the condensate hose through the drainage adaptor to desired length.
2. Cut off any excess hose, leaving 30 to 50 mm inside the adaptor.

3. Connect the adaptor to fixed condensate pipe.

Note! You can connect the drainage adaptor to a ∅ 22 mm (outer diameter) copper pipe or to a ∅ 32 mm (inner diameter) sewer socket.

Note! Make sure that the air venting of the drainage adaptor is facing upwards and at an inclination of max. 45°.

Note! Make sure that the condensation pump hose does not block the sewerage.



4. After installation, make sure that the horizontal inclination of the fall for the condensation sewerage is at least 2%.

4.7 Attaching the electrical connections

DANGER

Electrocution hazard. Touching live parts or components of the unit can cause severe injury or death.

Only qualified persons are allowed to perform electrical work on the unit.

DANGER

The mains wiring and low-voltage control wiring must be installed separately. Never run the mains and control wiring in the same cable. This can cause unit malfunction, severe injury, or death.

CAUTION

When connecting the unit to the circuit, make sure that the connection is done in accordance with local laws and decrees.

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Note! The unit is available with Vari equipment. The unit is delivered with model-specific electric diagrams that must be used when doing the electrical connections.

The unit is delivered as wired (including internal wirings) and connected so that the unit only needs to be connected to the supply and to possible control wirings at the installation site. Please contact the seller of the unit for further information on the specific electrical and control connections of the unit and the wirings required for them.

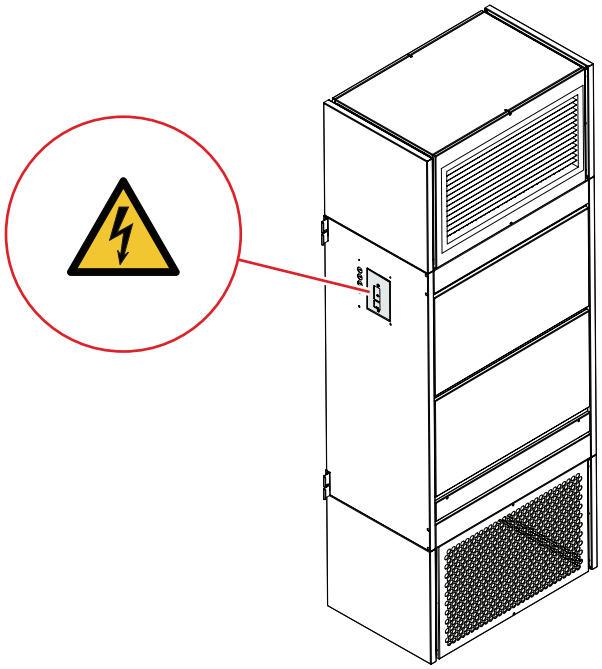


Figure 14: Electrical box

1. When connecting the unit, make sure that the supply of the unit is protected by means of a front fuse.
2. If several units are connected in parallel behind the same supply, make sure that the size and sufficiency of the fuse is sufficient for unit-specific protection.
3. Make sure that the cable is dimensioned in accordance with the maximum values that are specified in the type plate of the unit. (See *Section 3.3 Type plate*.)

Note! The power supply to the unit must always be continuous. If the power supply is off, the water condensation pump and the automation of the unit do not work.

4. Connect the external cabling on the unit to the coupling card in the link box. The coupling card contains a terminal block.

4.8 Testing the condensation water pump

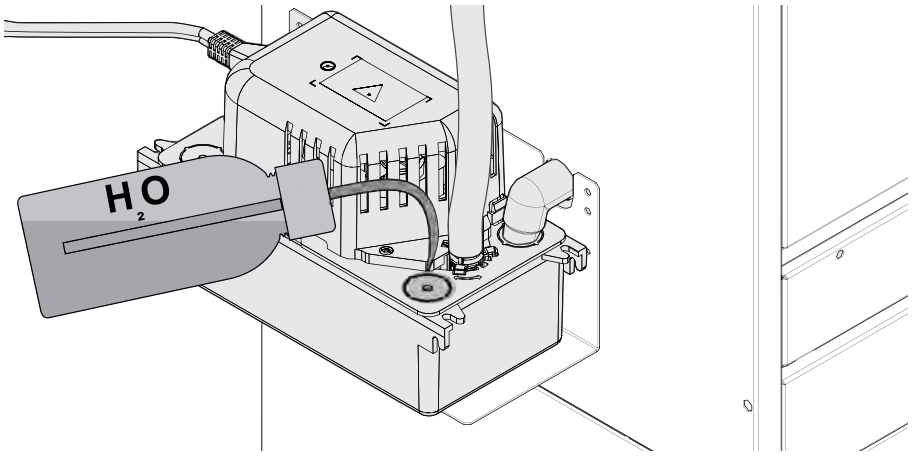
CAUTION

Risk of water damage. You must test the condensation water pump after you have installed the unit.

Do not operate the unit before you have run the test successfully.

Before you can operate the unit, you must test the condensation water pump. Run a leak test after you have mounted the unit and done the necessary electrical and pipe connections.

1. To test the condensation water pump, pour approximately 2 liters of water into the pump basin.



2. After you have poured the water into the basin, make sure that
   a. the condensation water pump starts
   b. the pump moves the water to the condensation sewerage
   c. the pump stops after the water has gone to the sewerage
   d. there are no leaks anywhere in the system.

Note! The leak test has been successful, if the pump starts, moves the water, stops, and there are no leaks.

3. If the leak test was successful, you can start to use the unit.
4. If the leak test failed, do not use the unit before you have run another, successful test.

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5 Operation of the unit

5.1 Controlling the unit

The fan motor of the unit is equipped with a modern EC (electronically commuted) motor. The fan motor is controlled with voltage messages of 0–10 VDC. At 0 V, the fan motor is stopped, and at 10 V, the fan motor operates at full speed.

You can adjust room temperature by changing the speed and valve positions of the unit to achieve the set room temperature. The control valve and speed are controlled by a separate room/house automation control.

Note! This applies only if the unit contains two- or three-way valves.

The condensate pump is controlled internally. The condensate pump operates, even if the unit is stopped with the controller or the house automation control. The unit operates independently according to the control method selected.

6 Maintenance of the unit

6.1 Maintenance schedule

WARNING

If you detect water leakage during unit operation, shut down the unit and contact maintenance.

For the unit to function properly, you must do the maintenance procedures regularly. We recommend that you maintain the unit components according to the following schedule.

COMPONENT	ACTION	MAINTENANCE INTERVAL
Grille	Clean the grille with a clean, damp cloth.	Every 12 months or when needed
Filter	Inspect the filter at least once a year. Clean the dust from the filter with a vacuum. Change the filter, when required.	Every 12 months or when needed
Condensation water basin	Drain and clean the condensation water basin.	Every 5 years or when needed

Note! If there are local and/or site-specific regulations, such as hygiene regulations, that differ from the maintenance schedule above, follow the local and/or site-specific regulations.

Note! You can find more detailed instructions for maintenance in the following sections.

6.2 Opening the maintenance hatches

The unit has three separate maintenance hatches. The locations are shown in the figures below.

1. Hatch for maintenance work on filters
2. Hatch for maintenance work on coil and condensation water basin
3. Hatch for maintenance work on fan and internal electric connections

WARNING

Electrocution hazard. Before you do open any of the maintenance hatches, make sure that the unit is disconnected from the circuit and that it is de-energized.

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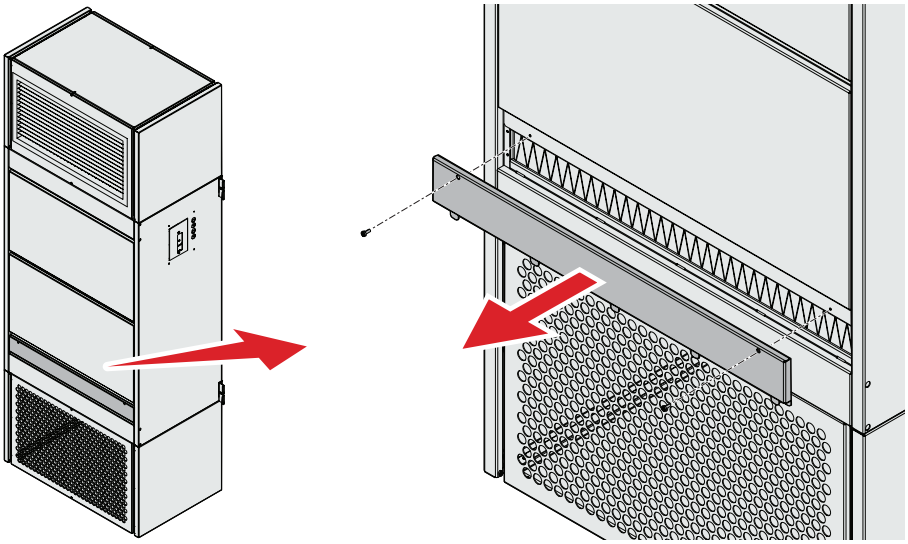
WARNING

Risk of injury. Use caution when you do maintenance work inside the unit. There are moving parts inside the unit that can cause injury.

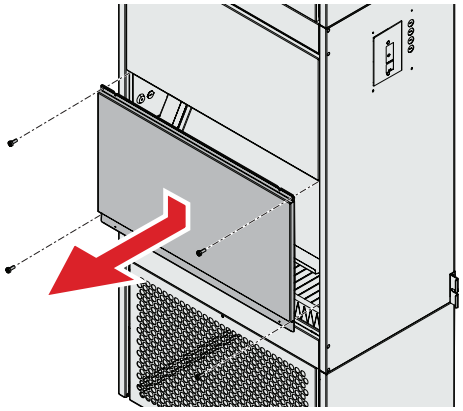
1. To do maintenance work on the filters, remove the bottom maintenance hatch.



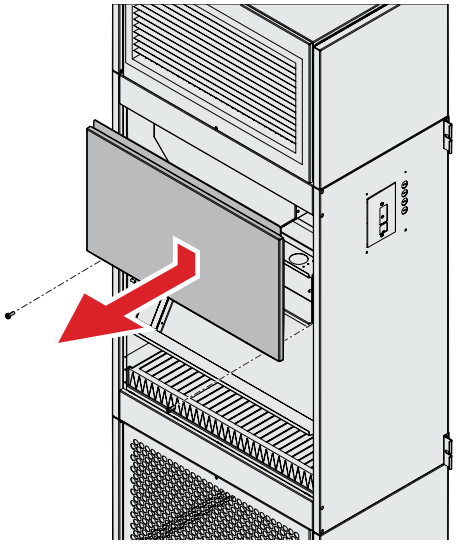
WARNING

Always support the maintenance hatch with one hand while opening. The hatch will fall off and can cause injury, if it is not supported.

2. To do maintenance work on the coil and condensation water basin, remove the middle maintenance hatch.



3. To do maintenance work on the fan and internal electric connections, remove the top maintenance hatch.



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6.3 Cleaning and replacing the filter

The filters are located in the front side of the unit. The need for cleaning the filter depends on the location and use of the unit.

The unit filters are made of disposable material, and they can be used only once.

Note! You can order filters as spare parts from Chiller. The order codes are:
- **N00356475** (GIANT 700)
- **N00356474** (GIANT 1300, you need 2 pcs of filters for this unit).

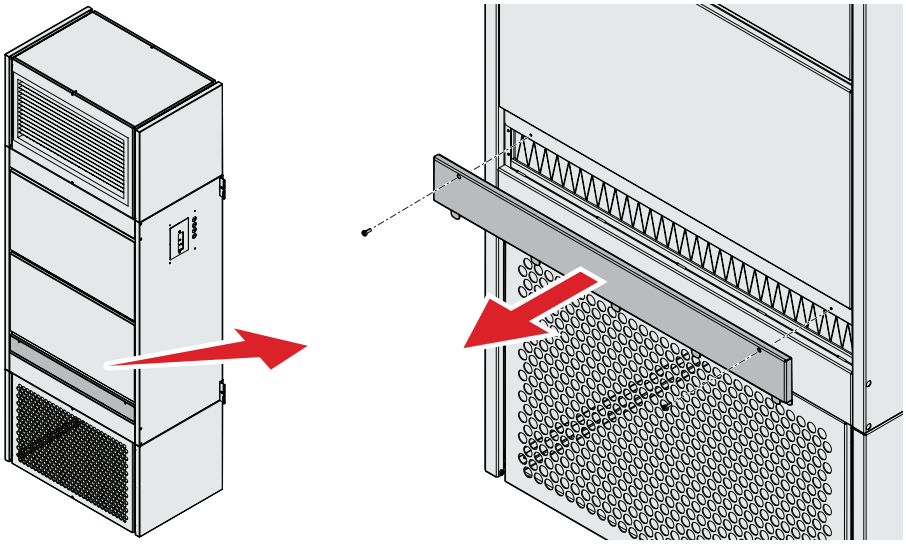
Note! Replace the filter immediately, if the filter is dirty or if it is damaged.
You must check and clean the filter regularly, at least once a year, depending on the conditions of the installation site. Regular maintenance ensures a longer life cycle for the unit.

Note! If you do not have a new filter at hand and the filter is dirty, you can vacuum the filter. Replace the filter as soon as possible.

WARNING

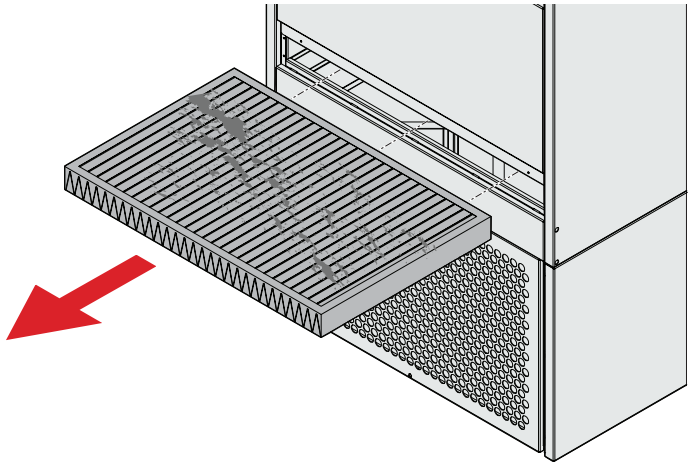
Electrocution hazard. Before you do any maintenance work on the unit, make sure that the unit is disconnected from the circuit and that it is de-energized.

1. To replace the filter, remove the filter maintenance hatch.

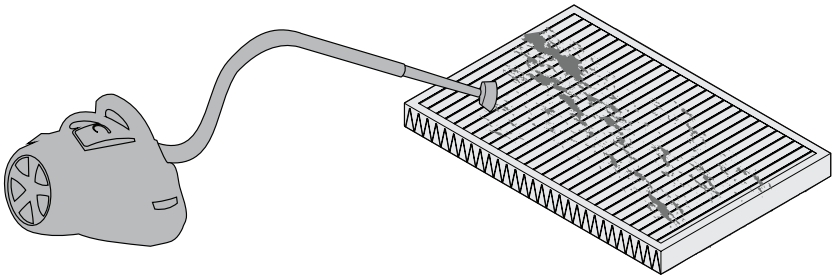


2. Remove the filter.

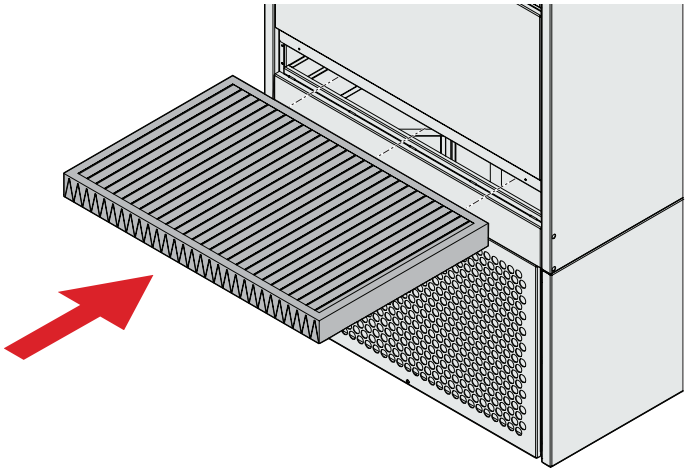
Note! The GIANT 1300 unit has two (2) filters.



3. If you do not have a new filter at hand, clean the filter from dust by vacuuming it.



4. If the filter is still dirty after you have vacuumed it, replace the filter.



5. Attach the filter maintenance hatch.

6.4 Cleaning the condensation water basin

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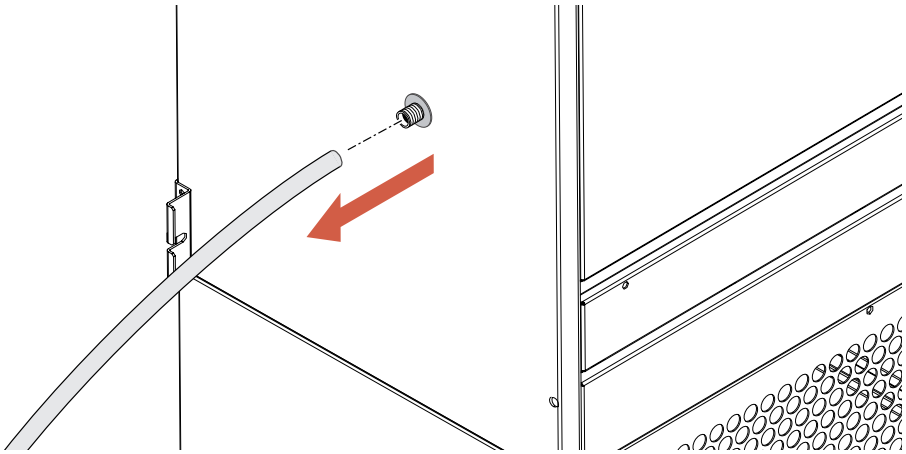
WARNING

Electrocution hazard. Before you do any maintenance work on the unit, make sure that the unit is disconnected from the circuit and that it is de-energized.

Note! Access to the condensation water basin is limited. Inspect and clean the basin through the drainage outlet.

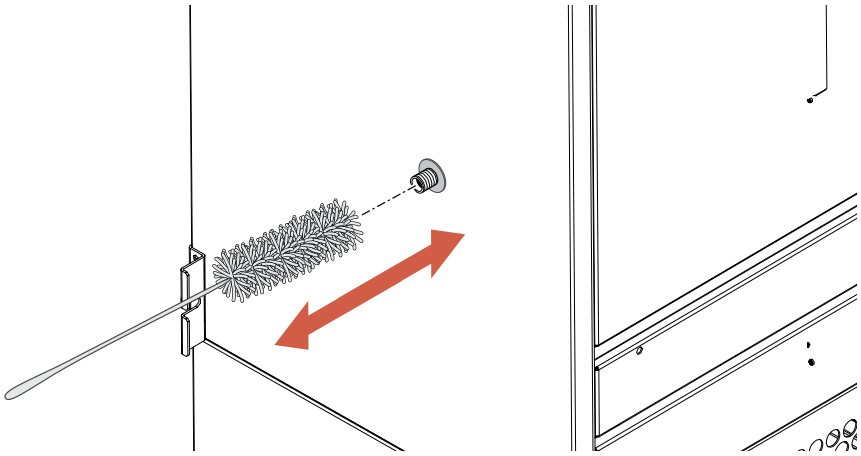
Note! Do not use detergents or solvents that can damage the unit.

1. Remove the drain pipe.

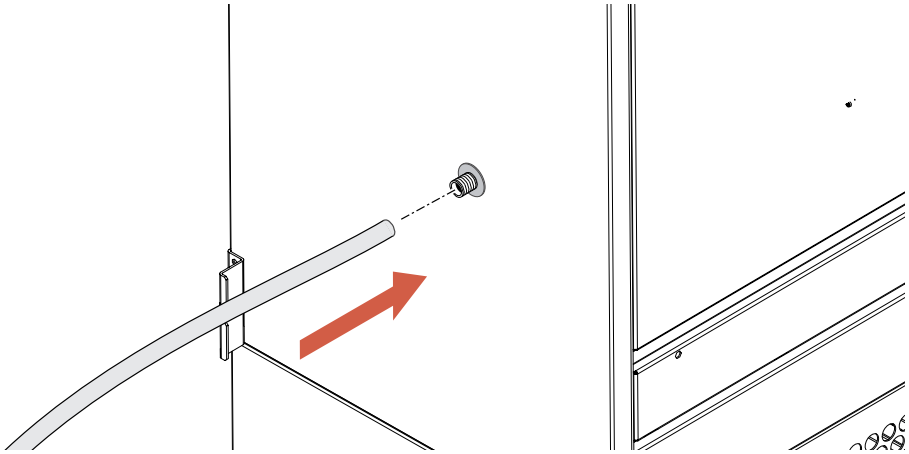


2. Clean the condensation water basin with a bottle brush.

Note! The coil fins have sharp edges. Be careful not to cut yourself. Handle the coil fins carefully, do not damage them.



3. Attach the drain pipe.



APPENDIX A: Vari-option control connections

Table 2: Vari-option control connections

POS	Connector	Function	Technical description
PWR	L	230 V AC/line	Fuse on card, max. 5 A
	N	230 V AC/neutral	
	PE	Protective Earth	
C1	AA	Alarm contact (in or out)	OPEN when alarm active or unit not powered. Potential free.
	AA	Alarm contact (in or out)	OPEN when alarm active or unit not powered. Potential free.
	V+	24 V auxiliary output from the control card. Selectable between AC or DC with jumper J1 (DC when in DOWN position).	Max. output current 0.6 A
	G0	Signal ground. All I/O signals are referenced to this connector.	Common for aux. 24 V output, 0–10 V control inputs, 0–10 V control outputs, 24 V AC/DC control inputs and 24 V AC control outputs. Not connected to Protective Earth (PE).
C2	F	Fan speed input, 0–10 V (linear), or 24 V AC/DC for ON/OFF control.	Impedance 50 kΩ. Desired control mode detected automatically.
	C	Cooling valve control input, 0–10 V (linear), or 24 V AC/DC for ON/OFF control.	Impedance 50 kΩ. Desired control mode detected automatically.
	H	Heating valve control input, 0–10 V (linear), or 24 V AC/DC for ON/OFF control.	Impedance 50 kΩ. Desired control mode detected automatically.
C3	1	Fixed fan speed 1 control input, 24 V AC or DC control	When active, takes priority over F-control input.
	2	Fixed fan speed 2 control input, 24 V AC or DC control	When active, takes priority over F-control input.
	3	Fixed fan speed 3 control input, 24 V AC or DC control	When active, takes priority over F-control input.
	V+	Same as in connector C1	Same as in connector C1
COOL OUT	0–10 V	0–10 V valve output for cooling actuator	Follows C input
	G0	Same as in connector C1	Same as in connector C1
	24 V	24 V AC PWM output for cooling actuator/ 24 V AC power output for 0–10 V actuators	Follows C-input, or continuous 24 V AC output voltage

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POS	Connector	Function	Technical description
HEAT OUT	0–10 V	0–10 V valve output for heating actuator	Follows H-input
	G0	Same as in connector C1	Same as in connector C1
	24 V	24 V AC PWM output for heating actuator/ 24 V AC power output for 0–10 V actuators	Follows C-input, or continuous 24 V AC output voltage

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