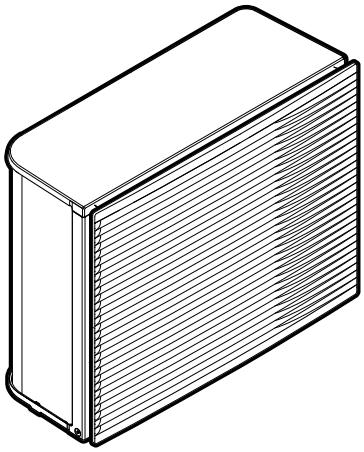
Installation manual

Daikin Altherma 3 H HT



UPRA036D▲VK▼
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▲= 1, 2, 3, …, 9, A, B, C, …, Z
▼= , , 1, 2, 3, …, 9

DAIKIN COMFORT TECHNOLOGIES MANUFACTURING, INC.
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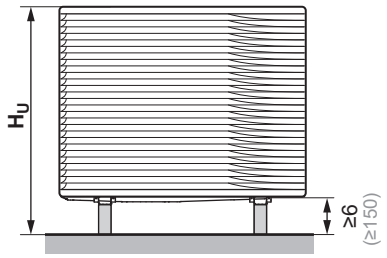
www.daikincomfort.com
P/N: 4P815176-1 Date: August 2025



A~E	H_B H_D H_U		inch (mm)						
			a	b	c	d	e	e_B	e_D
B	—			≥12 (≥300)					
A, B, C	—		≥20 (≥500)	≥12 (≥300)	≥4 (≥100)				
B, E	—			≥12 (≥300)			≥40 (≥1000)		≤20 (≤500)
A, B, C, E	—		≥20 (≥500)	≥12 (≥300)	≥6 (≥150)		≥40 (≥1000)		≤20 (≤500)
D	—					≥20 (≥500)			
D, E	—					≥20 (≥500)	≥40 (≥1000)	≤20 (≤500)	
A, C	—		≥20 (≥500)		≥4 (≥100)				
B, D	(H_B OR H_D) ≤ H_U			≥12 (≥300)		≥20 (≥500)			
	(H_B AND H_D) > H_U		✕						
B, D, E	(H_B OR H_D) ≤ H_U	H_B>H_D		≥12 (≥300)		≥40 (≥1000)	≥40 (≥1000)		≤20 (≤500)
		H_B<H_D		≥12 (≥300)		≥40 (≥1000)	≥40 (≥1000)	≤20 (≤500)	
	(H_B AND H_D) > H_U		✕						
A, C, D, E	—		≥20 (≥500)		≥6 (≥150)	≥20 (≥500)	≥40 (≥1000)	≤20 (≤500)	
A, B, C, D, E	(H_B OR H_D) ≤ H_U	H_B>H_D	≥20 (≥500)	≥12 (≥300)	≥6 (≥150)	≥40 (≥1000)	≥40 (≥1000)		≤20 (≤500)
		H_B<H_D	≥20 (≥500)	≥12 (≥300)	≥6 (≥150)	≥40 (≥1000)	≥40 (≥1000)	≤20 (≤500)	
	(H_B AND H_D) > H_U		✕						
B	—			≥12 (≥300)					
A, B, C	—		≥20 (≥500)	≥12 (≥300)	≥20 (≥500)				
B, E	—			≥12 (≥300)			≥40 (≥1000)		≤20 (≤500)
A, B, C, E	—		≥20 (≥500)	≥12 (≥300)	≥20 (≥500)		≥40 (≥1000)		≤20 (≤500)
D	—					≥20 (≥500)			
D, E	—					≥20 (≥500)	≥40 (≥1000)	≤20 (≤500)	
A, C	—		≥20 (≥500)		≥20 (≥500)				
B, D	(H_B OR H_D) ≤ H_U			≥12 (≥300)		≥20 (≥500)			
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B, D, E	(H_B OR H_D) ≤ H_U	H_B>H_D		≥12 (≥300)		≥40 (≥1000)	≥40 (≥1000)		≤20 (≤500)
		H_B<H_D		≥12 (≥300)		≥40 (≥1000)	≥40 (≥1000)	≤20 (≤500)	
	(H_B AND H_D) > H_U		✕						
A, C, D, E	—		≥20 (≥500)		≥20 (≥500)	≥20 (≥500)	≥40 (≥1000)	≤20 (≤500)	
A, B, C, D, E	(H_B OR H_D) ≤ H_U	H_B>H_D	≥20 (≥500)	≥12 (≥300)	≥20 (≥500)	≥40 (≥1000)	≥40 (≥1000)		≤20 (≤500)
		H_B<H_D	≥20 (≥500)	≥12 (≥300)	≥20 (≥500)	≥40 (≥1000)	≥40 (≥1000)	≤20 (≤500)	
	(H_B AND H_D) > H_U		✕						

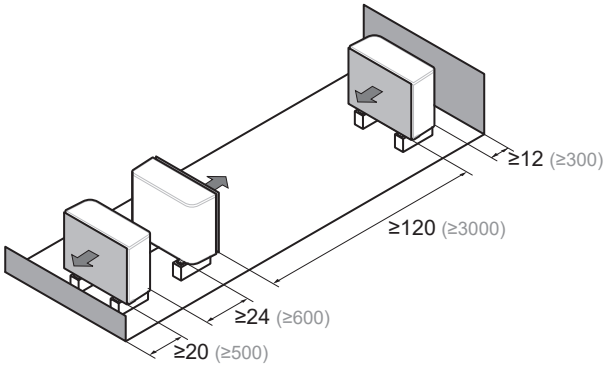


Table of contents

1 About this document

Target audience

Authorized installers

Documentation set

This document is part of a documentation set. The complete set consists of:

- **General safety precautions:**
  - Safety instructions that you must read before installing
  - Format: Paper (in the box of the indoor unit)
- **Operation manual:**
  - Quick guide for basic usage
  - Format: Paper (in the box of the indoor unit)
- **User reference guide:**
  - Detailed step-by-step instructions and background information for basic and advanced usage
  - Format: Digital files on www.daikincomfort.com. Use the search function 🔍 to find your model.
- **Installation manual – Outdoor unit:**
  - Installation instructions
  - Format: Paper (in the box of the outdoor unit)
- **Installation manual – Indoor unit:**
  - Installation instructions
  - Format: Paper (in the box of the indoor unit)
- **Installer reference guide:**
  - Preparation of the installation, good practices, reference data, …
  - Format: Digital files on www.daikincomfort.com. Use the search function 🔍 to find your model.

The latest revision of the supplied documentation is published on www.daikincomfort.com and is available via your dealer.

The original instructions are written in English. All other languages are translations of the original instructions.

Technical engineering data

- The full set of the latest technical data is available at www.daikincomfort.com.

Online tools

In addition to the documentation set, some online tools are available for installers:

- Daikin Altherma Xpress
  - Digital selection tool that offers quick equipment selection with the option to generate a report.
  - To access the web tool, registration on the Daikin City platform is required. For more information, see https://althermaxpress.daikincity.com.
- Daikin *Tech Hub*
  - Daikin *Tech Hub* supports service contractors working with Daikin products. It provides all Daikin technical and service information directly at your fingertips.
  - The mobile app can be downloaded for iOS and Android™ devices using the QR codes below. Registration for the Daikin City platform is required for full access to the app.

App Store®

Google Play™ store

App Store® is a registered trademark of Apple Inc..

Android™ and Google Play™ are trademarks of Google LLC.

2 Specific installer safety instructions

Always observe the following safety instructions and regulations.

General installation requirements

WARNING

Only personnel that have been trained to install, adjust, service, maintain or repair (hereinafter, "service") the equipment specified in this manual should service the equipment.

This equipment is NOT intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do NOT play with the equipment.

The manufacturer will NOT be responsible for any injury or property damage arising from improper supervision, service or service procedures. If you service this unit, you assume responsibility for any injury or property damage that may result. In addition, in jurisdictions that require one or more licenses to service the equipment specified in this manual, only licensed personnel should service the equipment. Improper supervision, installation, adjustment, servicing, maintenance or repair of the equipment specified in this manual, or attempting to install, adjust, service or repair the equipment specified in this manual without proper supervision or training may result in product damage, property damage, personal injury or death.

WARNING

Do NOT bypass safety devices.

Installation site (see "4.1 Preparing the installation site" [▶ 9])

WARNING

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

WARNING

Follow the service space dimensions in this manual to install the unit correctly. See "4.1.1 Installation site requirements of the outdoor unit" [▶ 9].

Special requirements for R32 (see "4.1.1 Installation site requirements of the outdoor unit" [▶ 9])

WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use means to accelerate the defrosting process or to clean the equipment, other than those recommended by the manufacturer.
- Be aware that R32 refrigerant does NOT contain an odor.

WARNING

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

WARNING

Make sure installation, servicing, maintenance and repair comply with instructions from Daikin and with applicable codes (for example national gas regulation) and are executed ONLY by authorized persons.

Mounting the outdoor unit (see "4.2 Mounting the outside unit" [▶ 9])

WARNING

Fixing method of the outdoor unit MUST be in accordance with the instructions from this manual. See "4.2 Mounting the outside unit" [▶ 9].

CAUTION

To avoid injury, do NOT touch the air inlet or aluminum fins of the unit.

Opening and closing the units (see "4.2 Mounting the outside unit" [▶ 9])

DANGER: RISK OF ELECTROCUTION

Do NOT leave the unit unattended when the service cover is removed.

DANGER: RISK OF ELECTROCUTION

DANGER: RISK OF BURNING/SCALDING

WARNING

Rotating fan. Before powering ON or servicing the outdoor unit, make sure that the discharge grille covers the fan as protection against a rotating fan. See:

- "4.4 To install the discharge grille" [▶ 11]
- "4.5 To remove the discharge grille, and put the grille in the safety position" [▶ 12]

Piping installation (see "5 Piping installation" [▶ 13])

WARNING

Field piping MUST be in accordance with the instructions from this manual. See "5 Piping installation" [▶ 13].

In case of freeze protection by anti-freeze:

WARNING

Ethylene anti-freeze is toxic. If you add anti-freeze to the water, do NOT install freeze protection valves. The valves release the toxic anti-freeze when they are activated.

Possible consequence:

- Heart, kidney or liver damage in case of anti-freeze swallowing or skin contact with anti-freeze.
- Nausea, sickness and diarrhea in case of anti-freeze inhalation.

WARNING

Due to the presence of anti-freeze, the system can corrode. Uninhibited anti-freeze becomes acidic under the influence of oxygen. High temperatures and the presence of copper accelerate this process. The acidic uninhibited anti-freeze attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system. It is therefore important to respect the following:

- A qualified water specialist has treated the water.
- Select anti-freeze with corrosion inhibitors to prevent anti-freeze oxidation and subsequent acid formation.
- Do NOT use automotive anti-freeze because these contain corrosion inhibitors with only a limited lifetime. On top of that, they also contain silicates that can foul or plug the system.
- Do NOT use galvanized pipes in anti-freeze systems because they provoke certain components in the anti-freeze's corrosion inhibitor to precipitate.

Electrical installation (see "6 Electrical installation" [▶ 15])

DANGER: RISK OF ELECTROCUTION

WARNING

Electrical wiring MUST be in accordance with the instructions from:

- this manual. See "6 Electrical installation" [▶ 15].
- The wiring diagram, which is delivered with the unit, is located on the inside of the service cover. For a translation of its legend, see "10.2 Wiring diagram: Outdoor unit" [▶ 25].

WARNING

The installation of the product MUST comply with the latest edition of the National Electric Code.

WARNING

Appliance shall be installed in accordance with national wiring regulations.

WARNING

- All wiring MUST be performed by an authorized electrician and MUST comply with the national wiring regulation.
- Make electrical connections to the fixed wiring.
- All components procured on-site and all electrical construction MUST comply with the applicable codes.

WARNING

Rotating fan. Before powering ON or servicing the outdoor unit, make sure that the discharge grille covers the fan as protection against a rotating fan. See:

- "4.4 To install the discharge grille" [▶ 11]
- "4.5 To remove the discharge grille, and put the grille in the safety position" [▶ 12]

WARNING

ALWAYS use multicore cable for power supply cables.

CAUTION

Do NOT push or place redundant cable length into the unit.

WARNING

- If the power supply has a missing or wrong N-phase, equipment might break down.
- Establish proper grounding. Do NOT ground the unit to a utility pipe, surge protector, or telephone ground. Incomplete or incorrect grounding may cause electrical shocks.
- Install the required fuses or circuit breakers. See "6.1 Specifications of standard wiring components" [▶ 15].
- Secure the electrical wiring with cable ties so that the cables do NOT come in contact with sharp edges or piping, particularly on the high-pressure side.
- Do NOT use taped wires, extension cords, or connections from a star system. They can cause overheating, electrical shocks or fire.
- Do NOT install a phase advancing capacitor, because this unit is equipped with an inverter. A phase advancing capacitor will reduce performance and may cause accidents.

WARNING

If the supply cord is damaged, it MUST be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

INFORMATION

For details on the fuse ratings, the fuse types and the circuit breaker ratings, see "6 Electrical installation" [▶ 15].

Maintenance and service (see "8 Maintenance and service" [▶ 18])

DANGER: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Where applicable, stop the equipment's operation first and allow (refrigerant) pressure to equalize before turning OFF the power.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components. For the location of the terminals, see the wiring diagram. If the measured voltage is still higher than 50 V DC, discharge the capacitors in a safe manner by using a dedicated capacitor discharge pen to avoid the possibility of sparking.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- Protect electric components from getting wet while the service cover is opened.

WARNING

Prior to starting work on systems containing flammable refrigerant, safety checks are necessary to ensure that the risk of ignition is minimized. Therefore, some instructions should be followed.

Please refer to the service manual for more information.

WARNING

Make sure installation, testing and applied materials comply with applicable codes (on top of the instructions described in the Daikin documentation).

2 Specific installer safety instructions

WARNING

- In order to prevent oxygen deficiency and R32 combustion, keep the room well-ventilated for a healthy work environment. Do NOT work in a confined space. If a refrigerant leak is detected in a confined room or an inadequately ventilated location, do NOT start the work until the area has been ventilated appropriately.
- If the work area is NOT located in the open air, make sure the work area is adequately ventilated before breaking into the system or conducting any brazing. The ventilation MUST continue to operate during the period that the work is carried out to prevent accumulation of refrigerant in the work area. The ventilation should safely disperse any released refrigerant and preferably ventilate to the open air.

WARNING

All maintenance staff and others working in the local area MUST be instructed on the nature of work being carried out.

WARNING

Prior to and during work, the area MUST be checked with an appropriate refrigerant detector capable of detecting R32 refrigerant in order to ensure a work environment free of refrigerant.

WARNING

If any work is to be conducted on the refrigerating equipment or any associated parts which involves brazing, an appropriate dry powder or CO_2 fire extinguisher MUST be present.

When charging the unit, an appropriate dry powder or CO_2 fire extinguisher MUST be present.

WARNING

No person carrying out work in relation to a refrigerating system which involves exposing any pipework shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, MUST be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs MUST be displayed.

WARNING

Improper installation or attachment of equipment or accessories could result in electrical shock, short-circuit, leaks, fire or other damage to the equipment. ONLY use accessories, optional equipment and spare parts made or approved by Daikin unless otherwise specified. See the Daikin Spare Parts Bank (https://daikincomfort.com/resource-center/parts-supplies).

WARNING

For indoor installations: Make sure the total refrigerant charge is in accordance with the room size in which the unit is installed: please consult the detailed instructions on charging and allowed room sizes in the installation manual.

WARNING

Make sure the ventilation machinery and outlets are operating adequately and are NOT obstructed.

WARNING

If an indirect refrigerating circuit is being used, the secondary circuit MUST be checked for the presence of refrigerant.

WARNING

Make sure the markings on the unit remain visible and legible after inspection or repair work. Markings and signs that are illegible shall be corrected.

WARNING

Make sure that the refrigerating piping and components are installed in a position where they are unlikely to be exposed to any corroding substance.

WARNING

Ensure that the unit is properly grounded prior to conducting maintenance or service or charging the system with refrigerant. Do NOT ground the unit to a utility pipe, surge protector, or telephone ground. Incomplete or incorrect grounding may cause electrical shock.

WARNING

Ensure that no external live wiring is exposed while charging, recovering or purging the system. Sparks created when live wiring is short-circuited might ignite the refrigerant if it is leaked into the room while charging, recovering or purging the system.

WARNING

- ONLY use copper wires.
- Make sure the field wiring complies with the applicable codes.
- All field wiring MUST be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do NOT come into contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install ground wiring. Do NOT ground the unit to a utility pipe, surge protector, or telephone ground. Incomplete or incorrect grounding may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance
- Make sure to install the required fuses or circuit breakers.
- Make sure to install a ground leakage protector. Failure to do so may cause electrical shock or fire.
- When installing the ground leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the ground leakage protector.

WARNING

- Under no circumstances SHALL potential sources of ignition be used when searching for or detecting refrigerant leaks. A halide torch (or any other detector using a naked flame) MUST NOT be used.
- Ensure that the detector is NOT a potential source of ignition and is suitable for the detection of R32.
- If a leak is suspected, all naked flames MUST be removed or extinguished.
- Leak detection fluids are also suitable for use with most refrigerants, but the use of detergents containing chlorine MUST be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant MUST be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak.
- Only use the electronic leak tester for R32. The old flame leak tester CANNOT be used on a system with HFC refrigerant because there is no chlorine component in the refrigerant. In case of R32 (HFC) refrigerant, any flame in contact with (leaking) refrigerant is extremely dangerous.

WARNING

Sealed electrical components MUST be replaced.

WARNING

Intrinsically safe components MUST be replaced.

WARNING

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures MUST be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. Adhere to the following procedure:

- Safely remove refrigerant following local and national regulation,

- Evacuate,

- Purge the circuit with inert gas (optional for A2L),

- Evacuate (optional for A2L),

- Continuously flush or purge with inert gas when using a flame to open the circuit,

- Open the circuit.

The refrigerant charge MUST be recovered into the correct recovery cylinders if venting is not allowed by local and national codes.

The system MUST be purged with oxygen-free nitrogen to make the appliance safe for flammable refrigerants. This process might need to be repeated several times. Do NOT use compressed air or oxygen to purge the refrigerant system.

Refrigerant purging MUST be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process MUST be repeated until NO refrigerant is within the system (optional for A2L).

When the final oxygen-free nitrogen charge is used, the system MUST be vented down to atmospheric pressure to enable work to take place.

Ensure that the outlet for the vacuum pump is NOT close to any potential ignition sources and that ventilation is available.

WARNING

In addition to conventional charging procedures, the following requirements MUST be followed:

- Ensure that contamination of different refrigerants does NOT occur when using charging equipment. Hoses or lines MUST be as short as possible to minimize the amount of refrigerant contained in them.

- Cylinders MUST be kept in an appropriate position according to the instructions,

- Ensure that the refrigerating system is grounded prior to charging the system with refrigerant,

- Label the system when charging is complete (if not already),

- Take extreme care NOT to overfill the refrigerating system.

Prior to recharging the system, it MUST be pressure-tested with the appropriate purging gas. The system MUST be leak-tested on completion of charging, but prior to commissioning. A follow up leak test MUST be carried out prior to leaving the site.

WARNING

Before carrying out refrigerant recovery procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample MUST be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate the system electrically.
- Ensure that mechanical handling equipment is available, if required, for handling refrigerant cylinders.
- Ensure that all personal protective equipment is available and is used correctly.
- Ensure that the recovery process is supervised at all times by a competent person.
- Ensure that recovery equipment and cylinders are conform to the appropriate standards.
- If a vacuum is NOT possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that the cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do NOT overfill cylinders (no more than 60% volume liquid charge).
- Do NOT exceed the maximum working pressure of the cylinder, NOT even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed.
- Recovered refrigerant MUST NOT be charged into another refrigerating system unless it has been cleaned and checked.

WARNING

- Equipment MUST be labeled stating that it has been de-commissioned and emptied of refrigerant.
- The label MUST be dated and signed.
- For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Disposal (see "9 Disposal" [▶ 21])

WARNING

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants be removed safely.

When transferring refrigerant into cylinders, ensure that ONLY appropriate refrigerant recovery cylinders are used. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders MUST be complete with pressure relief valves and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment MUST be in good working order with a set of instructions concerning the equipment that is at hand and MUST be suitable for the recovery of the flammable refrigerant. Consult the manufacturer if in doubt. In addition, a set of calibrated weighing scales MUST be available and in good working order. Hoses MUST be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant MUST be processed according to local codes in the correct recovery cylinder, and the relevant waste transfer note arranged. Do NOT mix refrigerants in recovery units and especially NOT in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does NOT remain within the lubricant. Do NOT heat the compressor body with an open flame or other ignition sources to accelerate this process. Draining of oil from a system MUST be carried out safely.

2.1 Codes and regulations

This product is designed and manufactured to comply with national codes. The product shall be installed in accordance with the National Electrical Code (NFPA 70) and other required codes and regulations. Installation in accordance with such codes and / or prevailing local codes / regulations is the responsibility of the installer. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.

The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. Should you have any questions please contact the local office of the EPA.

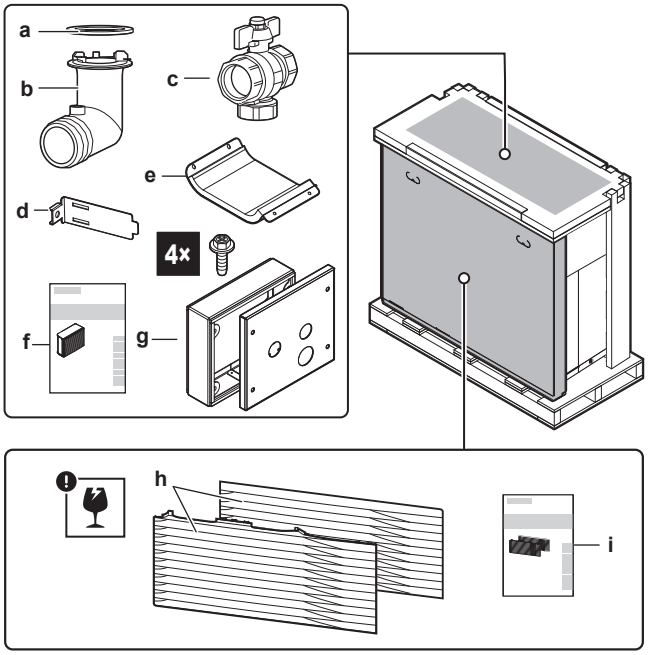
3 About the box

Keep the following in mind:

- Upon delivery, the unit MUST be checked for damage and completeness. Any damage or missing parts MUST be reported immediately to the claims agent of the carrier.
- Bring the packed unit as close as possible to its final installation position to prevent damage during transport.
- Prepare in advance the path along which you want to bring the unit to its final installation position.

3.1 Outdoor unit

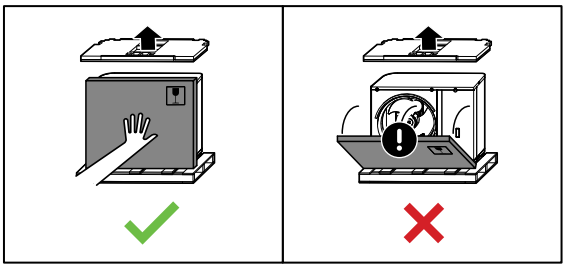
3.1.1 To remove the accessories from the outdoor unit



a	O-ring for drain socket
b	Drain socket
c	Shut-off valve (with integrated filter)
d	Thermistor fixture (for installations in areas with low ambient temperatures)
e	Compressor cover piece
f	Installation manual – Outdoor unit
g	Conduit box + cover + 4 screws
h	Discharge grille (upper + lower part)
i	Installation manual – Discharge grille

NOTICE

Unpacking. When you remove the top packaging/ accessories, hold the box containing the discharge grille to prevent it from falling.



4 Unit installation

4.1 Preparing the installation site

WARNING

The appliance shall be stored in a room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

4.1.1 Installation site requirements of the outdoor unit

Mind the spacing guidelines. See figure 1 on the inside of the front cover.

The symbols can be interpreted as follows:

A, C	Right side and left side obstacles (walls/baffle plates)
B	Suction side obstacle (wall/baffle plate)
D	Discharge side obstacle (wall/baffle plate)
E	Top side obstacle (roof)
a,b,c,d,e	Minimum service space between the unit and obstacles A, B, C, D and E
e_B	Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
e_D	Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
H_U	Height of the unit including the installation structure
H_B,H_D	Height of obstacles B and D
✕	NOT allowed

The outdoor unit is designed for outdoor installation only, and for the following ambient temperatures:

Cooling mode	50~109°F (10~43°C)
Heating mode	–18~95°F (–28~35°C)

Special requirements for R32

The outdoor unit contains an internal refrigerant circuit (R32), but you do NOT have to do any refrigerant field piping, or refrigerant charging.

Mind the following requirements and precautions:

WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use means to accelerate the defrosting process or to clean the equipment, other than those recommended by the manufacturer.
- Be aware that R32 refrigerant does NOT contain an odor.

WARNING

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (example: open flames, an operating gas appliance or an operating electric heater).

WARNING

Make sure installation, servicing, maintenance and repair comply with instructions from Daikin and with applicable codes (for example national gas regulation) and are executed ONLY by authorized persons.

NOTICE

Prior to recharging the system, it shall be pressure tested with the appropriate purging gas. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

INFORMATION

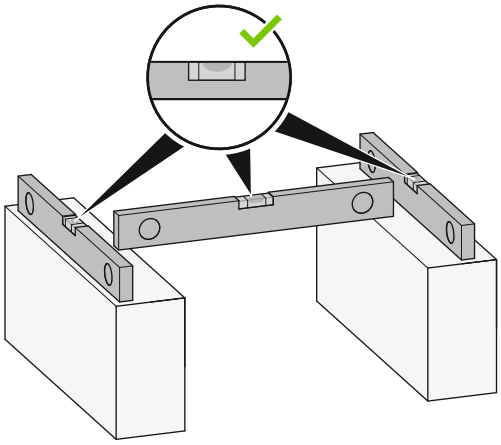
The sound pressure level is less than 70 dBA.

4.2 Mounting the outside unit

4.2.1 To provide the installation structure

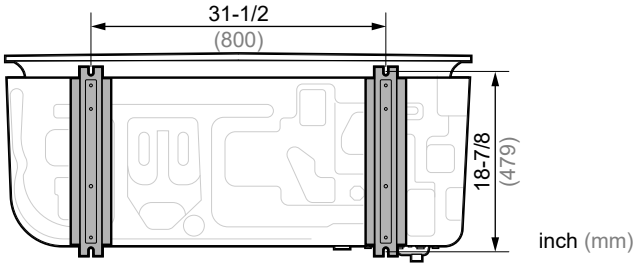
NOTICE

Level. Make sure the unit is leveled in all directions. Recommended:



Use 4 sets of 1/2" (M12) anchor bolts, nuts and washers. Provide at least 6" (150 mm) of free space below the unit. Additionally, make sure the unit is positioned at least 4" (100 mm) above the maximum expected level of snow.

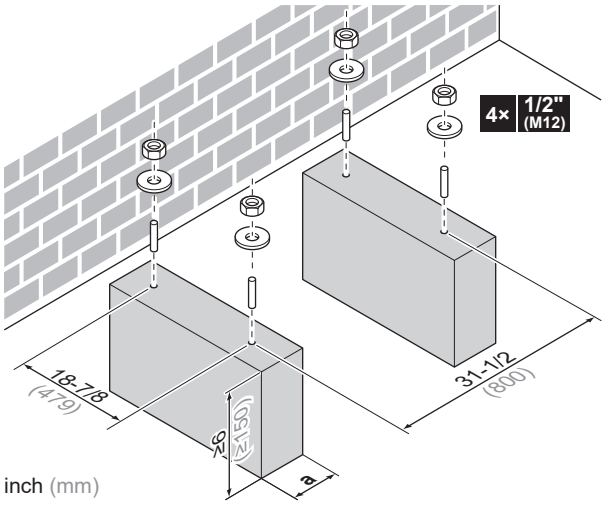
Anchor points



inch (mm)

Pedestal

When installing on a pedestal, make sure that the discharge grille still can be put in its safety position. See "4.5 To remove the discharge grille, and put the grille in the safety position" [▸ 12].



inch (mm)

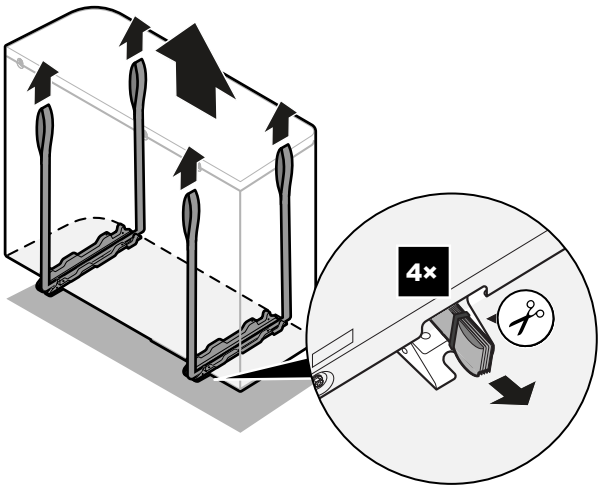
a Make sure not to cover the drain hole in the bottom plate of the unit.

4.2.2 To install the outdoor unit

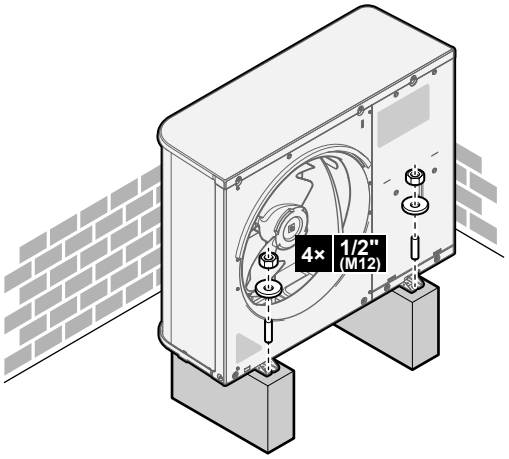
CAUTION

To avoid injury, do NOT touch the air inlet or aluminum fins of the unit.

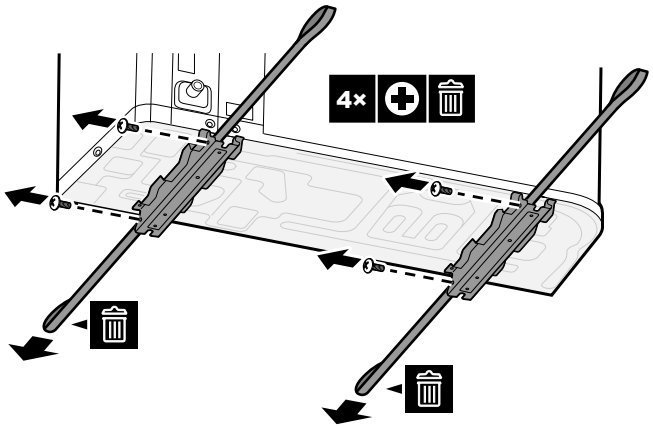
1 Carry the unit by its slings, and put it onto the installation structure.



2 Fix the unit to the installation structure.



3 Remove the slings (and screws), and dispose of them.



4.2.3 To provide drainage

Make sure that condensation water can be evacuated properly.

NOTICE

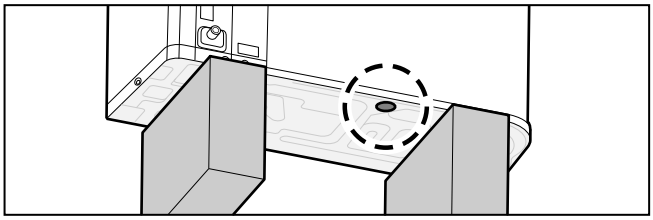
If the unit is installed in a cold climate, take adequate measures so that the evacuated condensate CANNOT freeze. We recommend doing the following:

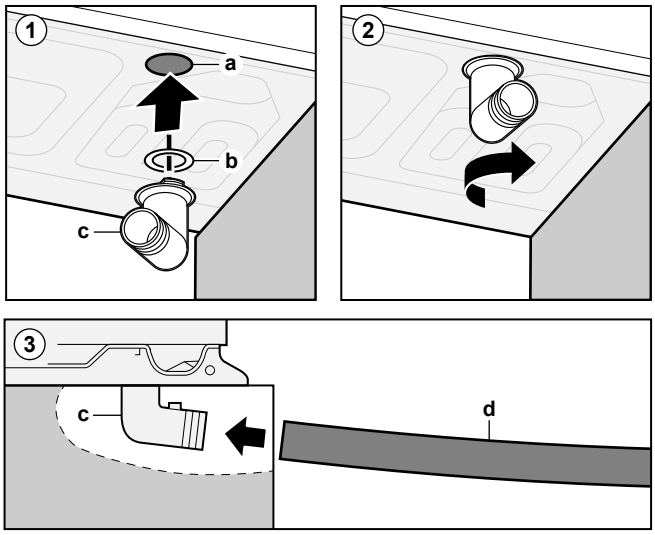
- Insulate the drain hose.
- Install a drain tube heater (field supplied). To connect the drain tube heater, see "6.3.1 To connect the electrical wiring to the outdoor unit" [▸ 16].

NOTICE

Provide at least 6" (150 mm) of free space below the unit. Additionally, make sure the unit is positioned at least 4" (100 mm) above the expected level of snow.

Use the drain plug (with O-ring) and a hose for drainage.





a Drain hole
b O-ring (delivered as accessory)
c Drain plug (delivered as accessory)
d Hose (field supplied)

NOTICE

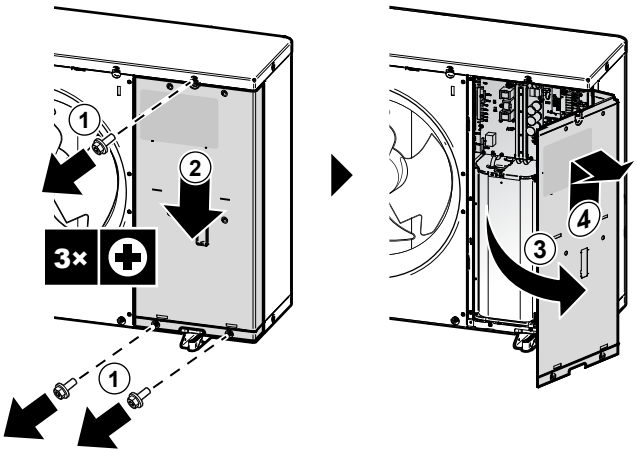
O-ring. Make sure the O-ring is installed correctly to prevent leakage.

4.3 Opening and closing the unit

4.3.1 To open the outdoor unit

DANGER: RISK OF ELECTROCUTION

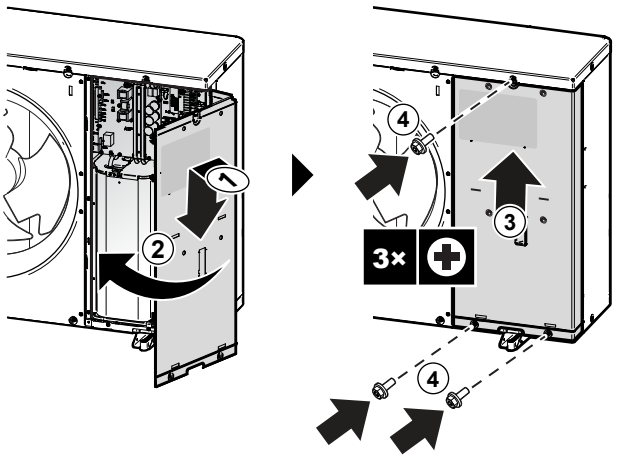
DANGER: RISK OF BURNING/SCALDING



4.3.2 To close the outdoor unit

NOTICE

When closing the outdoor unit cover, make sure that the tightening torque does NOT exceed 3.0 lbf•ft (4.1 N•m).

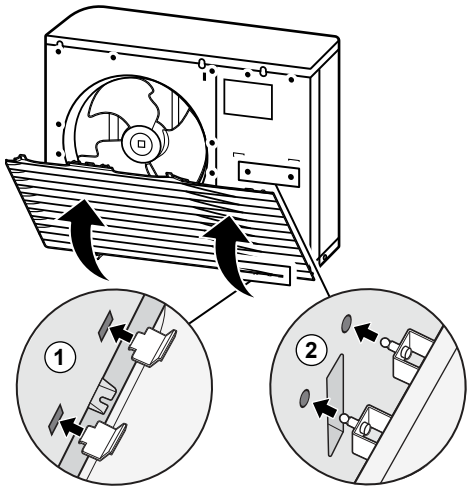


4.4 To install the discharge grille

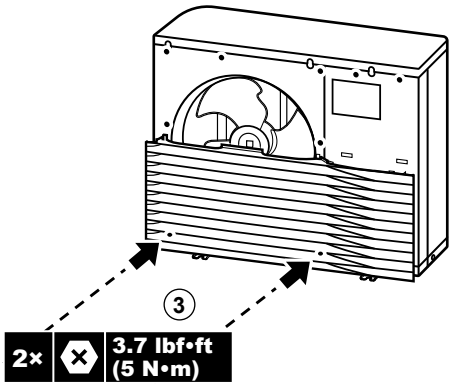
Install the lower part of the discharge grille

1 Insert the hooks.

2 Insert the ball studs.



3 Fix the 2 lower screws.



Install the upper part of the discharge grille

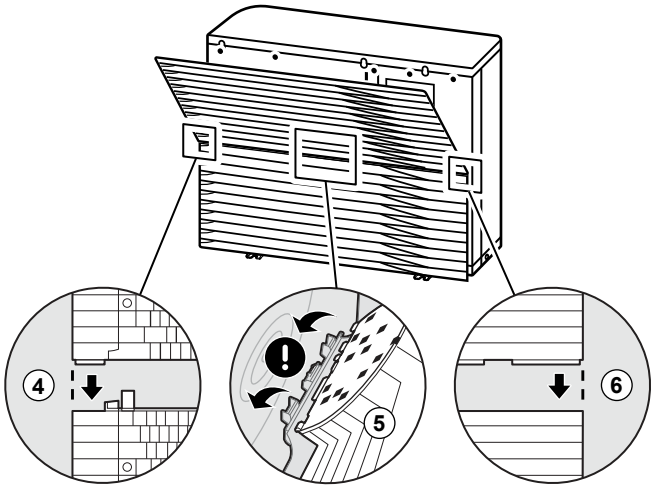
NOTICE

Vibrations. Make sure the upper part of the discharge grille is attached seamlessly to the lower part to prevent vibrations.

4 Align and attach the left side.

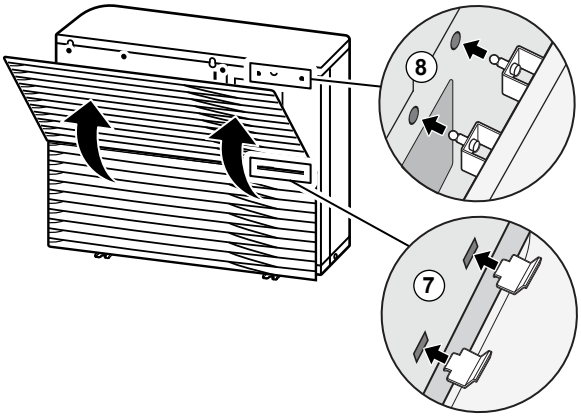
5 Align and attach the middle part.

6 Align and attach the right side.

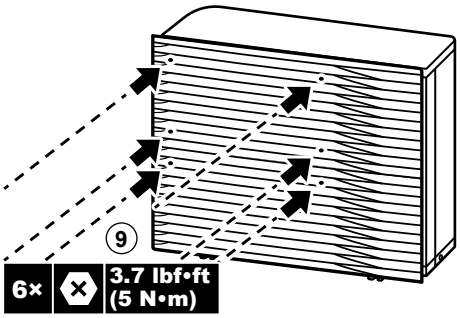


7 Insert the hooks.

8 Insert the ball studs.



9 Fix the 6 remaining screws.



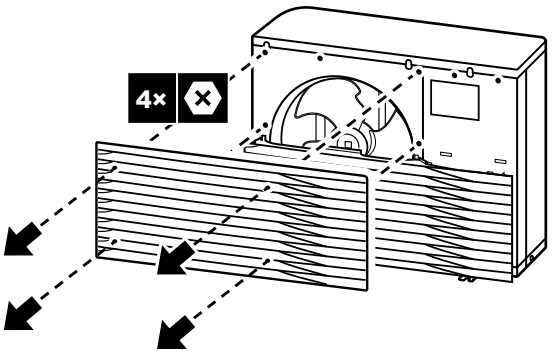
4.5 To remove the discharge grille, and put the grille in the safety position

WARNING

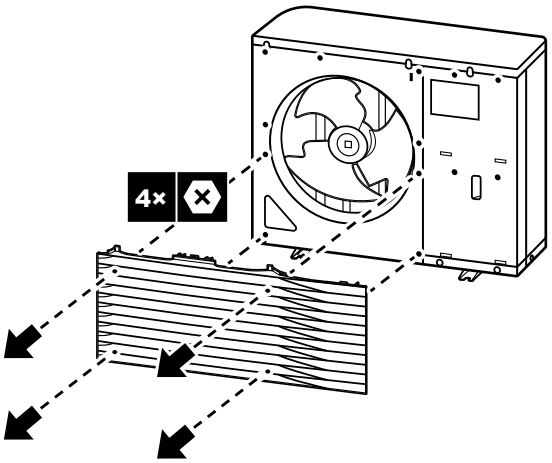
Rotating fan. Before powering ON or servicing the outdoor unit, make sure that the discharge grille covers the fan as protection against a rotating fan. See:

- "4.4 To install the discharge grille" [▶ 11]
- "4.5 To remove the discharge grille, and put the grille in the safety position" [▶ 12]

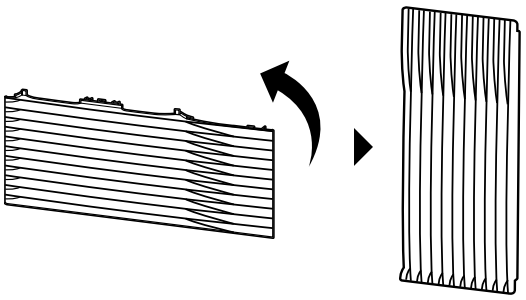
1 Remove the upper part of the discharge grille.



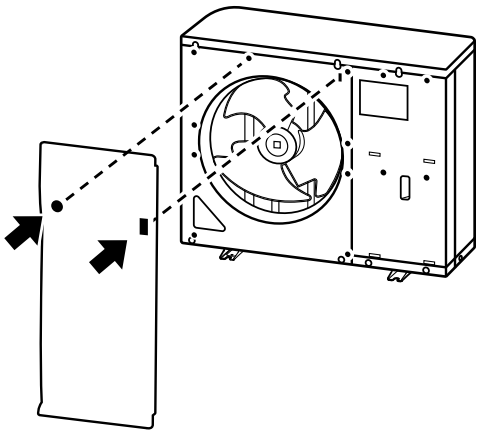
2 Remove the lower part of the discharge grille.



3 Rotate the lower part of the discharge grille.

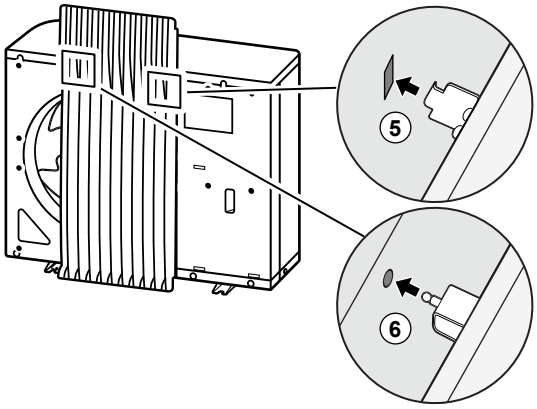


4 Align the ball stud and hook on the grille with their counterparts on the unit.



5 Insert the hook.

6 Insert the ball stud.

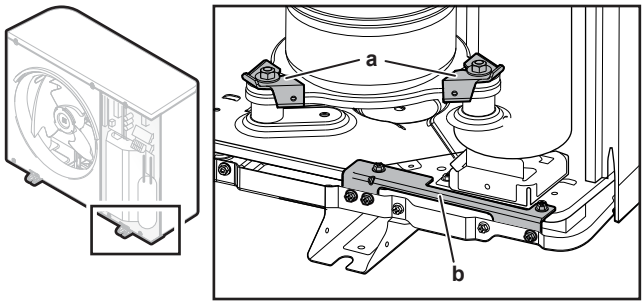


4.6 To remove the transportation stay

NOTICE

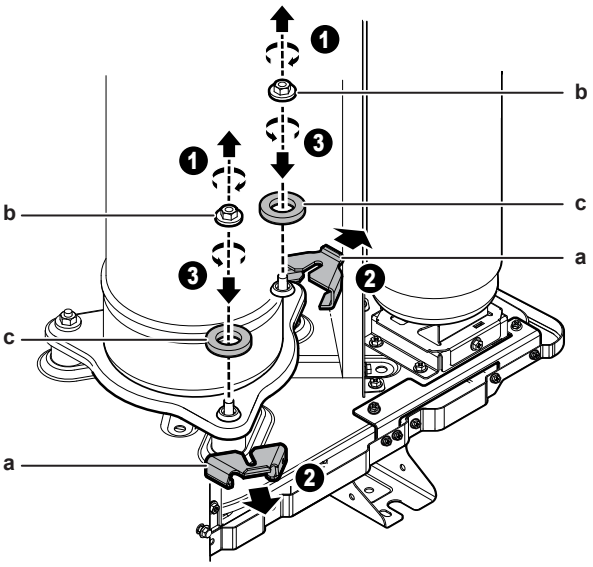
If the unit is operated with the transportation stay attached, abnormal vibration or noise may be generated.

The transportation stays protect the unit during transport. During installation they must be removed.



a Transportation stays (2×) and washers (2×)
b Transportation stay (1×)

Prerequisite: Open the switch box cover. See "4.3.1 To open the outdoor unit" [▸ 10].

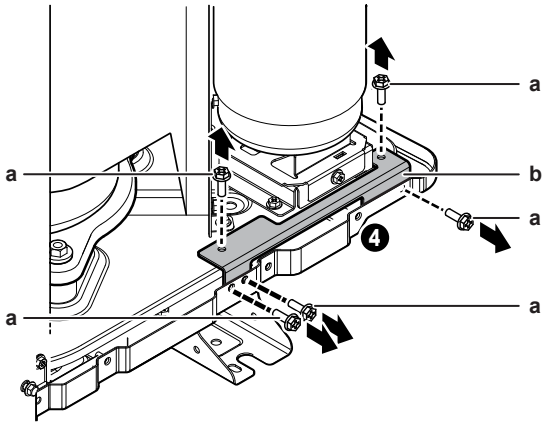


a Transportation stay
b Nut
c Washer

1 Remove the nut (b) and washer (c) from both transportation stays (a).

2 Remove and discard the washers (c) and transportation stays (a).

3 Re-install the nuts (b) of the compressor mounting bolt and tighten to 7.4 lbf•ft (10.1 N•m) of torque.



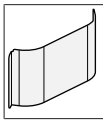
a Screw
b Transportation stay

4 Remove the screws (a) (5×) from the transportation stay (b). Put 4 screws (a) aside for later use (see "4.7 To attach the compressor cover piece" [▸ 13]).

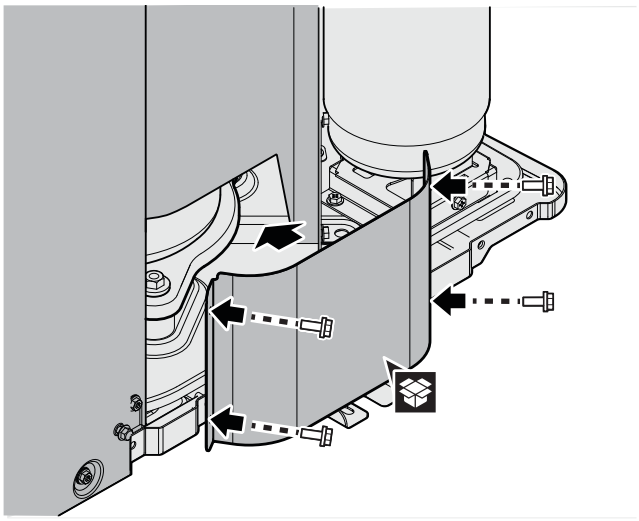
5 Remove and discard the transportation stay (b).

4.7 To attach the compressor cover piece

Required accessory (delivered with the unit):

	Compressor cover piece

1 Put the compressor cover piece on its place. Use the screws (4x) of the transportation stay to fix it (see "4.6 To remove the transportation stay" [▸ 12]).



5 Piping installation

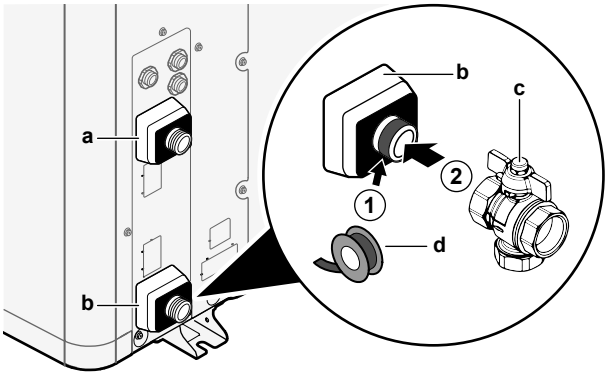
5.1 Connecting water piping

5.1.1 To connect the water piping

NOTICE

Do NOT use excessive force when connecting the field piping and make sure the piping is aligned properly. Deformed pipes can cause the unit to malfunction.

1 Connect the shut-off valve (with integrated filter) to the outdoor unit water inlet using thread sealant.



a Water OUT (screw connection, male, 1" NPT)
b Water IN (screw connection, male, 1" NPT)
c Shut-off valve with integrated filter (delivered as accessory)(2× screw connection, female, 1" NPT)
d Thread sealant

2 Connect the field piping to the shut-off valve.

3 Connect the field piping to the outdoor unit water outlet.

NOTICE

About the shut-off valve with integrated filter (delivered as accessory):

- The installation of the valve at the water inlet is mandatory.
- Mind the flow direction of the valve.

NOTICE

Install air purge valves at all local high points.

5.1.2 To fill the water circuit

See the installation manual of the indoor unit, or the installer reference guide.

5.1.3 To protect the water circuit against freezing

About freeze protection

Frost can damage the system. To prevent the hydraulic components from freezing, the software is equipped with special frost protection functions such as water pipe freeze prevention that include the activation of a pump in case of low temperatures.

However, in case of a power failure, these functions cannot guarantee protection.

Do one of the following to protect the water circuit against freezing:

- Add anti-freeze to the water. Anti-freeze lowers the freezing point of the water.
- Install freeze protection valves. Freeze protection valves drain the water from the system before it can freeze. Insulate the freeze protection valves in a similar way as the water piping, but do NOT insulate the inlet and outlet (release) of these valves.

WARNING

Ethylene anti-freeze is toxic. If you add anti-freeze to the water, do NOT install freeze protection valves. The valves release the toxic anti-freeze when they are activated.
Possible consequence:

- Heart, kidney or liver damage in case of anti-freeze swallowing or skin contact with anti-freeze.
- Nausea, sickness and diarrhea in case of anti-freeze inhalation.

Freeze protection by anti-freeze

About freeze protection by anti-freeze

Adding anti-freeze to the water lowers the freezing point of water.

WARNING

Due to the presence of anti-freeze, the system can corrode. Uninhibited anti-freeze becomes acidic under the influence of oxygen. High temperatures and the presence of copper accelerate this process. The acidic uninhibited anti-freeze attacks metal surfaces and forms galvanic corrosion cells that cause severe damage to the system. It is therefore important to respect the following:

- A qualified water specialist has treated the water.
- Select anti-freeze with corrosion inhibitors to prevent anti-freeze oxidation and subsequent acid formation.
- Do NOT use automotive anti-freeze because these contain corrosion inhibitors with only a limited lifetime. On top of that, they also contain silicates that can foul or plug the system.
- Do NOT use galvanized pipes in anti-freeze systems because they provoke certain components in the anti-freeze's corrosion inhibitor to precipitate.

NOTICE

Anti-freeze absorbs water from its environment. Therefore do NOT add anti-freeze that has been exposed to air. Leaving the cap off the anti-freeze container causes the concentration of water to increase. The anti-freeze concentration is then lower than assumed. As a result, the hydraulic components might freeze up after all. Take preventive actions to ensure a minimal exposure of the anti-freeze to air.

Types of anti-freeze

The types of anti-freeze that can be used depend on whether the system contains a domestic hot water tank:

If…	Then…
The system contains a domestic hot water tank	Only use propylene anti-freeze[(a)]
The system does NOT contain a domestic hot water tank	You can use either propylene anti-freeze[(a)] or ethylene anti-freeze

[(a)] Propylene anti-freeze, including the necessary inhibitors, classified as UPC Section 603.3.1 low hazard substances.

Required concentration of anti-freeze

The required concentration of anti-freeze depends on the lowest expected outdoor temperature, and on whether you want to protect the system from bursting or from freezing. To prevent the system from freezing, more anti-freeze is required.

Add anti-freeze according to the table below.

Lowest expected outdoor temperature	Prevent from bursting	Prevent from freezing
23°F (–5°C)	10%	15%
14°F (–10°C)	15%	25%
5°F (–15°C)	20%	35%
–4°F (–20°C)	25%	—
–13°F (–25°C)	30%	—
–22°F (–30°C)	35%	—

INFORMATION

- Protection against bursting: the anti-freeze will prevent the piping from bursting, but NOT the liquid inside the piping from freezing.
- Protection against freezing: the anti-freeze will prevent the liquid inside the piping from freezing.

NOTICE

- The required concentration might differ depending on the type of anti-freeze. ALWAYS compare the requirements from the table above with the specifications provided by the anti-freeze manufacturer. If necessary, meet the requirements set by the anti-freeze manufacturer.
- The added concentration of anti-freeze should NEVER exceed 35%.
- If the liquid in the system is frozen, the pump will NOT be able to start. Remember that if you only prevent the system from bursting, the liquid inside might still freeze.
- When water is at standstill inside the system, the system is very likely to freeze and get damaged.

Anti-freeze and the maximum allowed water volume

Adding anti-freeze to the water circuit reduces the maximum allowed water volume of the system. For more information, see the installer reference guide (topic "To check the water volume and flow rate").

Anti-freeze setting

NOTICE

If anti-freeze is present in the system, setting [E-0D] must be set to 1. If the anti-freeze setting is NOT set correctly, the liquid inside the piping can freeze.

Freeze protection by freeze protection valves

About freeze protection valves

When no anti-freeze is added to the water, you can use freeze protection valves to drain the water from the system before it can freeze.

- Install freeze protection valves (field supplied) at all lowest points of the outside field piping.
- Normally closed valves (located indoors near the piping entry/exit points) can prevent that all water from indoor piping is drained when the freeze protection valves open.

NOTICE

When freeze protection valves are installed, set the minimum cooling setpoint (default=44.6°F (7°C)) at least 3.6°F (2°C) higher than the maximum opening temperature of the freeze protection valve. If lower, freeze protection valves can open during cooling operation.

For more information, see the installer reference guide.

5.1.4 To insulate the water piping

The piping in the complete water circuit MUST be insulated to prevent condensation during cooling operation and reduction of the heating and cooling capacity.

Outdoor water piping insulation

NOTICE

Outside piping. Make sure the outside piping is insulated as instructed to protect against hazards.

For piping in free air, it is recommended to use the insulation thickness as shown in below table as a minimum (with λ=0.023 BTU/(h.ft.°F) (λ=0.039 W/(m.K))).

Piping length	Minimum insulation thickness
<65 ft (<20 m)	3/4" (19 mm)
65~98 ft (20~30 m)	1-1/4" (32 mm)
98~131 ft (30~40 m)	1-5/8" (40 mm)
131~164 ft (40~50 m)	2" (50 mm)

This recommendation ensures good operation of the unit. However, local regulations may differ and shall be followed.

6 Electrical installation

DANGER: RISK OF ELECTROCUTION

WARNING

The installation of the product MUST comply with the latest edition of the National Electric Code.

WARNING

Appliance shall be installed in accordance with national wiring regulations.

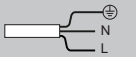
WARNING

Rotating fan. Before powering ON or servicing the outdoor unit, make sure that the discharge grille covers the fan as protection against a rotating fan. See:

- "4.4 To install the discharge grille" [▶ 11]
- "4.5 To remove the discharge grille, and put the grille in the safety position" [▶ 12]

WARNING

ALWAYS use multicore cable for power supply cables.



CAUTION

Do NOT push or place redundant cable length into the unit.

NOTICE

The distance between the high voltage and low voltage cables should be at least 2" (50 mm).

6.1 Specifications of standard wiring components

NOTICE

We recommend using solid wires. If stranded wires are used, slightly twist the strands to consolidate the end of the conductor for either direct use in the terminal clamp or insertion in a round crimp-style terminal. Details are described in "Guidelines when connecting the electrical wiring" in the installer reference guide.

Component		UPRA036+043D
Power supply cable	MCA[a]	39.1 A
	Invert drive current	29.4 A
	Voltage	230 V ±10%
	Phase	1~
	Frequency	60 Hz
	Wire size	MUST comply with national wiring regulation. 3-core cable
Interconnection cable (indoor ↔ outdoor)	Voltage	230 V ±10%
	Wire size	Only use harmonized wire providing double insulation and suitable for applicable voltage. 4-core cable Minimum 14 AWG (2.1 mm^2) based on the current
Maximum overcurrent protection (MOP)		40 A
Ground leakage circuit breaker / residual current device		30 mA – MUST comply with national wiring regulation
(Optional) Drain tube heater cable	Wires	MUST comply with national wiring regulation. Only use harmonized wire providing double insulation and suitable for the applicable voltage. 3-core cable (2+GND)
	Maximum allowed power	115 W; 0.5 A

[a] MCA=Minimum circuit ampacity. Stated values are maximum values (see electrical data of combination with indoor units for exact values).

6.2 Guidelines when connecting the electrical wiring

Tightening torques

Outdoor unit:

Item	Tightening torque
X1M	1.08 lbf•ft ±10% (1.47 N•m ±10%)
X2M	
M4 (ground)	

6.3 Connections to the outdoor unit

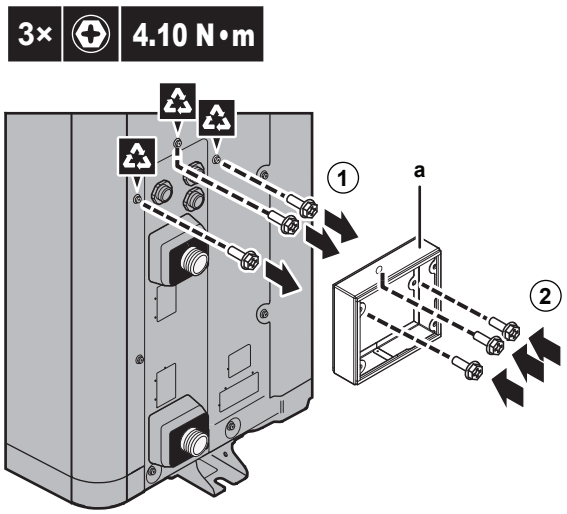
Item	Description
Power supply cable	See "6.3.1 To connect the electrical wiring to the outdoor unit" [▸ 16].
Interconnection cable	
Drain tube heater cable	
Connection for power saving function	
Air thermistor cable	See "6.3.2 To reposition the air thermistor on the outdoor unit" [▸ 18].

6.3.1 To connect the electrical wiring to the outdoor unit

1 Open the switch box cover. See "4.3.1 To open the outdoor unit" [▸ 10].

2 Mount the conduit box (a) at the back side of the unit:

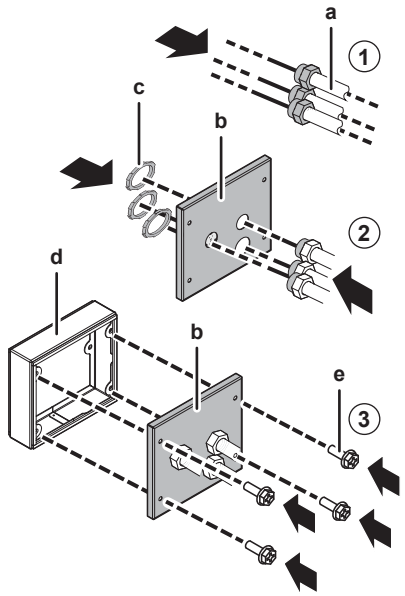
- Remove the screws (3x) from the casing. Put the screws aside.
- Mount the conduit box to the casing. Use the screws (3x) removed in the previous step and make sure that the tightening torque does NOT exceed 3.0 lbf•ft (4.1 N•m).

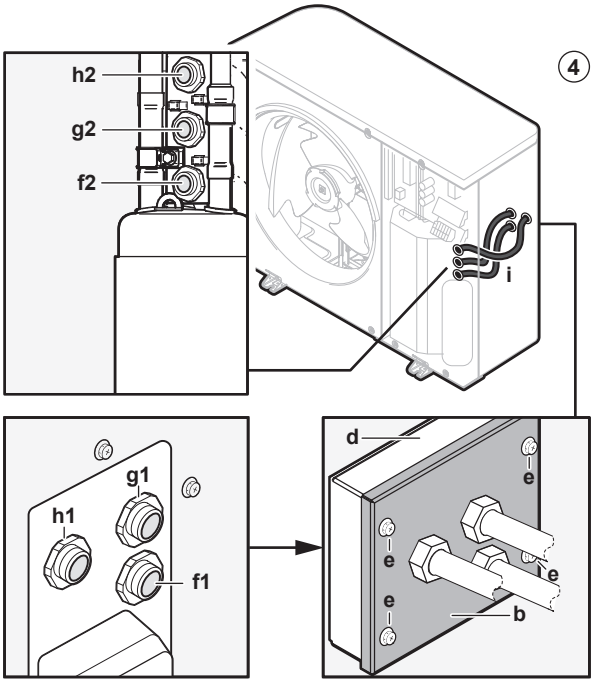


a Conduit box (delivered as accessory)

3 Insert the cables:

- First pass the cables through a protective conduit (a).
- Take the conduit cover (b) and pass the protective conduits (a) through the holes and secure them with a lock nut (c). Make sure the connection is watertight. Note: to pass the protective conduit of the optional drain tube heater cable, first remove the knockout hole on the conduit cover.
- Mount the conduit cover (b) using M5 screws (e) (4x) on the conduit box (d) and route the cables further through the factory-mounted cable sleeves (i) into the switch box. When closing the conduit cover (b), make sure that the tightening torque does NOT exceed 3.0 lbf•ft (4.1 N•m).



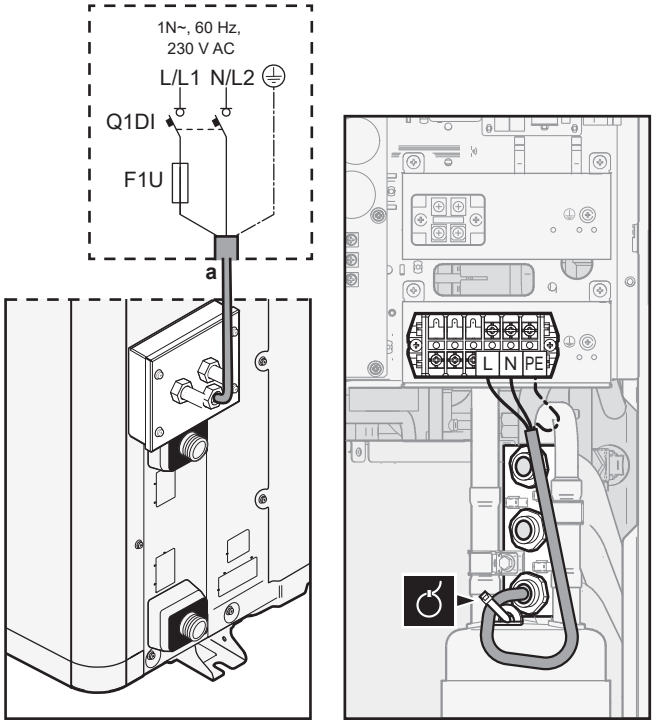


a Protective conduit (field supplied):
- 3/4" for the power supply cable
- 1/2" for the interconnection cable
- 1/2" for the drain tube heater cable

b Conduit cover (delivered as accessory)
c Lock nut
d Conduit box (delivered as accessory)
e Screw M5 (delivered as accessory)
f1+f2 Power supply cable (field supplied)
g1+g2 Interconnection cable (field supplied)
h1+h2 (optional) Drain tube heater cable (field supplied)
i Cable sleeves (factory-mounted)

4 Power supply cable:

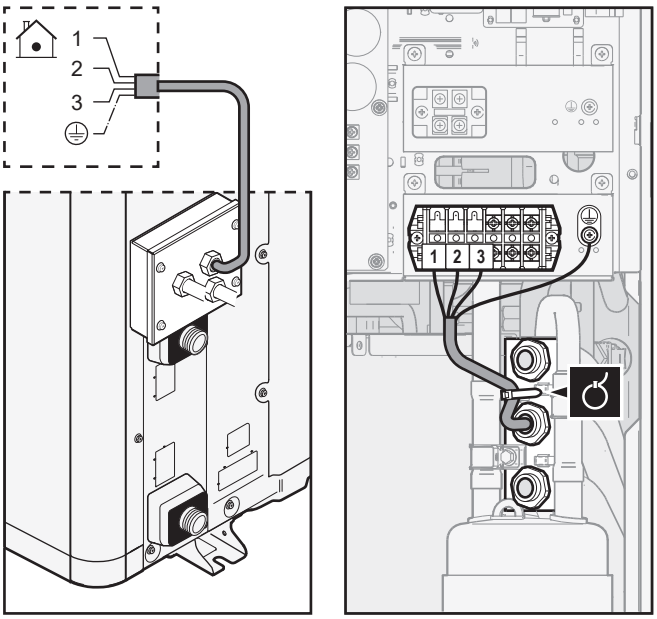
- Route the cable through the frame.
- Connect the wires to the terminal block.
- Fix the cable with a cable tie.



a Power supply cable (field supplied)
F1U Overcurrent fuse (field supplied)
Q1DI Ground leakage circuit breaker (field supplied)

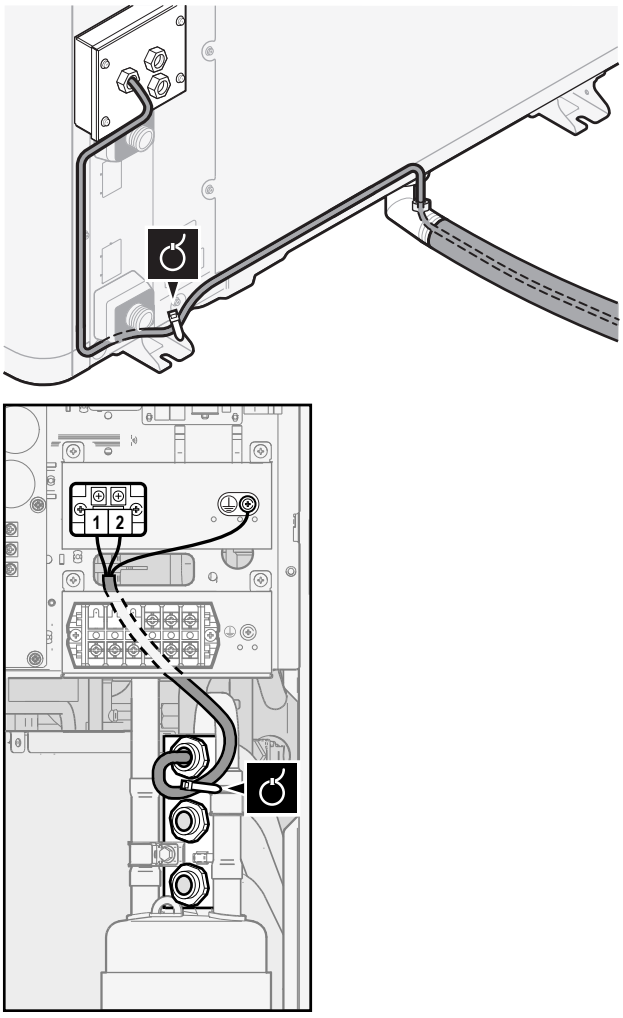
5 Interconnection cable (indoor↔outdoor):

- Route the cable through the frame.
- Connect the wires to the terminal block (make sure the numbers match with the numbers on the indoor unit) and the ground screw.
- Fix the cable with a cable tie.



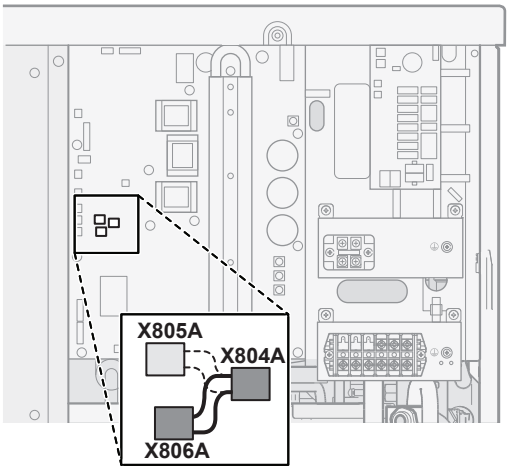
6 (Optional) **Drain tube heater cable**:

- Make sure the heating element of the drain tube heater is completely inside the drain tube.
- Route the cable through the frame.
- Connect the wires to the terminal block and the ground screw.
- Fix the cable with cable ties.



7 (Optional) **Power saving function**: If you want to use the power saving function:

- Disconnect X804A from X805A.
- Connect X804A to X806A.



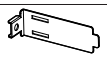
INFORMATION

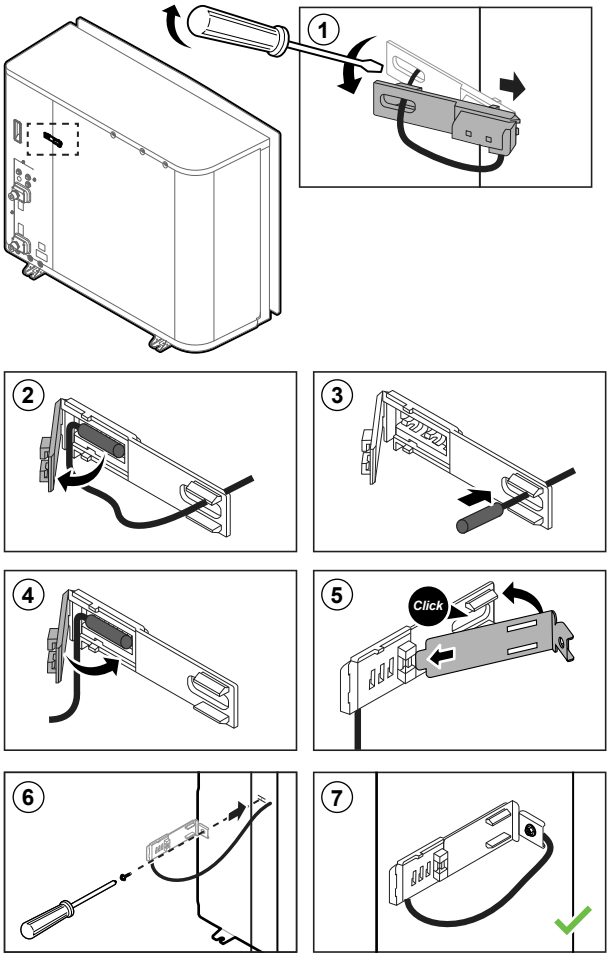
Power saving function. For more information about the power saving function ([9.F] or overview field setting [E-08]), see the installer reference guide.

6.3.2 To reposition the air thermistor on the outdoor unit

This procedure is only necessary in areas with low ambient temperatures.

Required accessory (delivered with the unit):

	Thermistor fixture.



7 Starting up the outdoor unit

See the indoor unit installation manual for configuration and commissioning of the system.

INFORMATION

During the first running period of the unit, the required power may be higher than stated on the nameplate of the unit. This phenomenon is caused by the compressor, that needs a continuous run time of 50 hours before reaching smooth operation and stable power consumption.

WARNING

Rotating fan. Before powering ON or servicing the outdoor unit, make sure that the discharge grille covers the fan as protection against a rotating fan. See:

- "4.4 To install the discharge grille" [▸ 11]
- "4.5 To remove the discharge grille, and put the grille in the safety position" [▸ 12]

8 Maintenance and service

NOTICE

Maintenance MUST be done by an authorized installer or service agent.

We recommend performing maintenance at least once a year. However, applicable codes might require shorter maintenance intervals.

8.1 Maintenance safety precautions

DANGER: RISK OF ELECTROCUTION

DANGER: RISK OF BURNING/SCALDING

DANGER: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Where applicable, stop the equipment's operation first and allow (refrigerant) pressure to equalize before turning OFF the power.
- Disconnect the power supply for more than 10 minutes, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components. For the location of the terminals, see the wiring diagram. If the measured voltage is still higher than 50 V DC, discharge the capacitors in a safe manner by using a dedicated capacitor discharge pen to avoid the possibility of sparking.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.
- Protect electric components from getting wet while the service cover is opened.

WARNING

Prior to starting work on systems containing flammable refrigerant, safety checks are necessary to ensure that the risk of ignition is minimized. Therefore, some instructions should be followed.

Please refer to the service manual for more information.

WARNING

Make sure installation, testing and applied materials comply with applicable codes (on top of the instructions described in the Daikin documentation).

WARNING

- In order to prevent oxygen deficiency and R32 combustion, keep the room well-ventilated for a healthy work environment. Do NOT work in a confined space. If a refrigerant leak is detected in a confined room or an inadequately ventilated location, do NOT start the work until the area has been ventilated appropriately.
- If the work area is NOT located in the open air, make sure the work area is adequately ventilated before breaking into the system or conducting any brazing. The ventilation MUST continue to operate during the period that the work is carried out to prevent accumulation of refrigerant in the work area. The ventilation should safely disperse any released refrigerant and preferably ventilate to the open air.

WARNING

All maintenance staff and others working in the local area MUST be instructed on the nature of work being carried out.

WARNING

Prior to and during work, the area MUST be checked with an appropriate refrigerant detector capable of detecting R32 refrigerant in order to ensure a work environment free of refrigerant.

WARNING

If any work is to be conducted on the refrigerating equipment or any associated parts which involves brazing, an appropriate dry powder or CO_2 fire extinguisher MUST be present.

When charging the unit, an appropriate dry powder or CO_2 fire extinguisher MUST be present.

WARNING

No person carrying out work in relation to a refrigerating system which involves exposing any pipework shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, MUST be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs MUST be displayed.

WARNING

Improper installation or attachment of equipment or accessories could result in electrical shock, short-circuit, leaks, fire or other damage to the equipment. ONLY use accessories, optional equipment and spare parts made or approved by Daikin unless otherwise specified. See the Daikin Spare Parts Bank (https://daikincomfort.com/resource-center/parts-supplies).

WARNING

For indoor installations: Make sure the total refrigerant charge is in accordance with the room size in which the unit is installed: please consult the detailed instructions on charging and allowed room sizes in the installation manual.

WARNING

Make sure the ventilation machinery and outlets are operating adequately and are NOT obstructed.

WARNING

If an indirect refrigerating circuit is being used, the secondary circuit MUST be checked for the presence of refrigerant.

WARNING

Make sure the markings on the unit remain visible and legible after inspection or repair work. Markings and signs that are illegible shall be corrected.

WARNING

Make sure that the refrigerating piping and components are installed in a position where they are unlikely to be exposed to any corroding substance.

WARNING

Ensure that the unit is properly grounded prior to conducting maintenance or service or charging the system with refrigerant. Do NOT ground the unit to a utility pipe, surge protector, or telephone ground. Incomplete or incorrect grounding may cause electrical shock.

WARNING

Ensure that no external live wiring is exposed while charging, recovering or purging the system. Sparks created when live wiring is short-circuited might ignite the refrigerant if it is leaked into the room while charging, recovering or purging the system.

WARNING

- ONLY use copper wires.
- Make sure the field wiring complies with the applicable codes.
- All field wiring MUST be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do NOT come into contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install ground wiring. Do NOT ground the unit to a utility pipe, surge protector, or telephone ground. Incomplete or incorrect grounding may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance
- Make sure to install the required fuses or circuit breakers.
- Make sure to install a ground leakage protector. Failure to do so may cause electrical shock or fire.
- When installing the ground leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the ground leakage protector.

WARNING

- Under no circumstances SHALL potential sources of ignition be used when searching for or detecting refrigerant leaks. A halide torch (or any other detector using a naked flame) MUST NOT be used.
- Ensure that the detector is NOT a potential source of ignition and is suitable for the detection of R32.
- If a leak is suspected, all naked flames MUST be removed or extinguished.
- Leak detection fluids are also suitable for use with most refrigerants, but the use of detergents containing chlorine MUST be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.
- If a leakage of refrigerant is found which requires brazing, all of the refrigerant MUST be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak.
- Only use the electronic leak tester for R32. The old flame leak tester CANNOT be used on a system with HFC refrigerant because there is no chlorine component in the refrigerant. In case of R32 (HFC) refrigerant, any flame in contact with (leaking) refrigerant is extremely dangerous.

WARNING

Sealed electrical components MUST be replaced.

WARNING

Intrinsically safe components MUST be replaced.

WARNING

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures MUST be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. Adhere to the following procedure:

- Safely remove refrigerant following local and national regulation,

- Evacuate,

- Purge the circuit with inert gas (optional for A2L),

- Evacuate (optional for A2L),

- Continuously flush or purge with inert gas when using a flame to open the circuit,

- Open the circuit.

The refrigerant charge MUST be recovered into the correct recovery cylinders if venting is not allowed by local and national codes.

The system MUST be purged with oxygen-free nitrogen to make the appliance safe for flammable refrigerants. This process might need to be repeated several times. Do NOT use compressed air or oxygen to purge the refrigerant system.

Refrigerant purging MUST be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process MUST be repeated until NO refrigerant is within the system (optional for A2L).

When the final oxygen-free nitrogen charge is used, the system MUST be vented down to atmospheric pressure to enable work to take place.

Ensure that the outlet for the vacuum pump is NOT close to any potential ignition sources and that ventilation is available.

WARNING

In addition to conventional charging procedures, the following requirements MUST be followed:

- Ensure that contamination of different refrigerants does NOT occur when using charging equipment. Hoses or lines MUST be as short as possible to minimize the amount of refrigerant contained in them.

- Cylinders MUST be kept in an appropriate position according to the instructions,

- Ensure that the refrigerating system is grounded prior to charging the system with refrigerant,

- Label the system when charging is complete (if not already),

- Take extreme care NOT to overfill the refrigerating system.

Prior to recharging the system, it MUST be pressure-tested with the appropriate purging gas. The system MUST be leak-tested on completion of charging, but prior to commissioning. A follow up leak test MUST be carried out prior to leaving the site.

WARNING

Before carrying out refrigerant recovery procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample MUST be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate the system electrically.
- Ensure that mechanical handling equipment is available, if required, for handling refrigerant cylinders.
- Ensure that all personal protective equipment is available and is used correctly.
- Ensure that the recovery process is supervised at all times by a competent person.
- Ensure that recovery equipment and cylinders are conform to the appropriate standards.
- If a vacuum is NOT possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that the cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do NOT overfill cylinders (no more than 60% volume liquid charge).
- Do NOT exceed the maximum working pressure of the cylinder, NOT even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed.
- Recovered refrigerant MUST NOT be charged into another refrigerating system unless it has been cleaned and checked.

WARNING

- Equipment MUST be labeled stating that it has been de-commissioned and emptied of refrigerant.
- The label MUST be dated and signed.
- For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

NOTICE: Risk of electrostatic discharge

Before performing any maintenance or service work, touch a metal part of the unit in order to eliminate static electricity and to protect the PCB.

8.2 Yearly maintenance

8.2.1 Yearly maintenance outdoor unit: overview

Check the following at least once a year:

- Heat exchanger
- Water filter

8.2.2 Yearly maintenance outdoor unit: instructions

Heat exchanger

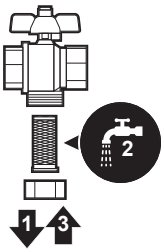
The heat exchanger of the outdoor unit can get blocked up due to dust, dirt, leaves, etc. It is recommended to clean the heat exchanger yearly. A blocked heat exchanger can lead to too low of pressure or too high of pressure, leading to worse performance.

Water filter

Close the valve. Clean and rinse the water filter.

NOTICE

Handle the filter with care. To prevent damage to the mesh of the filter, do NOT use excessive force when you reinsert it.



9 Disposal

The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. Should you have any questions please contact the local office of the EPA.

WARNING

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants be removed safely.

When transferring refrigerant into cylinders, ensure that ONLY appropriate refrigerant recovery cylinders are used. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders MUST be complete with pressure relief valves and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment MUST be in good working order with a set of instructions concerning the equipment that is at hand and MUST be suitable for the recovery of the flammable refrigerant. Consult the manufacturer if in doubt. In addition, a set of calibrated weighing scales MUST be available and in good working order. Hoses MUST be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant MUST be processed according to local codes in the correct recovery cylinder, and the relevant waste transfer note arranged. Do NOT mix refrigerants in recovery units and especially NOT in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does NOT remain within the lubricant. Do NOT heat the compressor body with an open flame or other ignition sources to accelerate this process. Draining of oil from a system MUST be carried out safely.

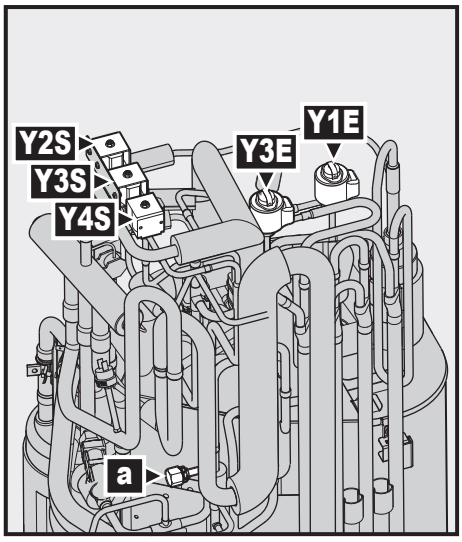
NOTICE

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts MUST comply with applicable codes. Units MUST be treated at a specialized treatment facility for reuse, recycling and recovery.

9.1 To recover refrigerant

When disposing of the outdoor unit, you need to recover its refrigerant.

- Use the service port (**a**) to recover refrigerant.
- Make sure the valves (**Y1E**, **Y3E**, **Y2S**, **Y3S**, **Y4S**) are open. If they are not open during refrigerant recovery, refrigerant remains trapped in the unit.



a Service port 5/16" flare
Y1E Electronic expansion valve (main)
Y3E Electronic expansion valve (injection)
Y2S Solenoid valve (low pressure bypass)
Y3S Solenoid valve (hot gas bypass)
Y4S Solenoid valve (liquid injection)

To recover refrigerant when power is ON

WARNING

Rotating fan. Before powering ON or servicing the outdoor unit, make sure that the discharge grille covers the fan as protection against a rotating fan. See:

- "4.4 To install the discharge grille" [▸ 11]
- "4.5 To remove the discharge grille, and put the grille in the safety position" [▸ 12]

1 Make sure the unit is not running.

2 Activate the recovery mode (see "9.1.2 Recovery mode (7 LEDs display)" [▸ 22]).

Result: The unit opens the valves (**Y***).

3 Recover refrigerant from the service port (**a**).

4 Deactivate the recovery mode (see "9.1.2 Recovery mode (7 LEDs display)" [▸ 22]).

Result: The unit returns the valves (**Y***) to their initial state.

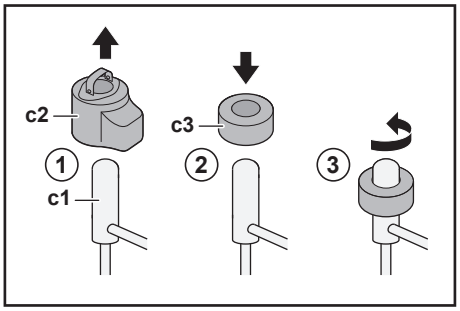
To recover refrigerant when power is OFF

1 Manually open the valves (**Y***) (see "9.1.1 To manually open the electronic expansion valves" [▸ 22]).

2 Recover refrigerant from the service port (**a**).

9.1.1 To manually open the electronic expansion valves

Before recovering refrigerant, make sure the electronic expansion valves are open. When power is OFF, this has to be done manually.



c1 Electronic expansion valve
c2 EEV coil
c3 EEV magnet

1 Remove the EEV coil (**c2**).

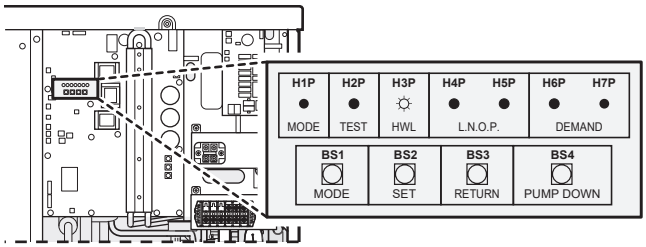
2 Slide an EEV magnet (**c3**) over the expansion valve (**c1**).

3 Turn the EEV magnet counter-clockwise to the fully open position of the valve. If you are not sure about what the open position is, turn the valve in its middle position so that refrigerant can pass.

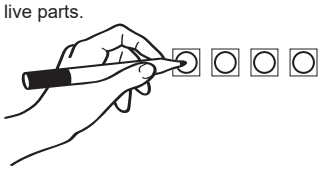
9.1.2 Recovery mode (7 LEDs display)

Components

To activate/deactivate the recovery mode, you need the following components:



H1P~H7P 7 LEDs display
BS1~BS4 Push buttons. Operate the push buttons with an insulated stick (such as a closed ballpoint pen) to avoid touching live parts.



To activate the recovery mode

INFORMATION

If you get confused in the middle of the process, press BS1 to return to the default situation.

Before recovering refrigerant, activate the recovery mode as follows:

#	Action	7 LEDs display[(a)]						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P
1	Start from the default situation.	●	●	●	●	●	●	●
2	Press and hold **BS1** for 5 seconds.	○	●	●	●	●	●	●
3	Press **BS2** 9 times.	○	●	●	○	●	●	○
4	Press **BS3** once.	○	●	●	●	●	●	◐
5	Press **BS2** once.	○	●	●	●	●	◐	●
6	Press **BS3** once.	○	●	●	●	●	○	●
7	Press **BS3** once. The flashing H1P indicates the recovery mode has been correctly selected and is activated.	◐	●	●	●	●	●	●
8	Press **BS1** once. H1P keeps flashing, indicating that you are in a mode that does not allow compressor operation.	◐	●	●	●	●	●	●

[(a)] ● = OFF, ○ = ON, and ◐ = flashing.

Result: The recovery mode is activated. The unit opens the electronic expansion valves / solenoid valves.

To deactivate the recovery mode

After recovering refrigerant, deactivate the recovery mode as follows:

#	Action	7 LEDs display[(a)]						
		H1P	H2P	H3P	H4P	H5P	H6P	H7P
1	Press and hold **BS1** for 5 seconds.	◐	●	●	●	●	●	●
2	Press **BS2** 9 times.	◐	●	●	○	●	●	○
3	Press **BS3** once.	◐	●	●	●	●	◐	●
4	Press **BS2** once.	◐	●	●	●	●	●	◐
5	Press **BS3** once.	◐	●	●	●	●	●	○
6	Press **BS3** once.	◐	●	●	●	●	●	●
7	Press **BS1** once to return to the default situation.	●	●	●	●	●	●	●

[(a)] ● = OFF, ○ = ON, and ◐ = flashing.

Result: The recovery mode is deactivated. The unit returns the electronic expansion valves / solenoid valves to their initial state.

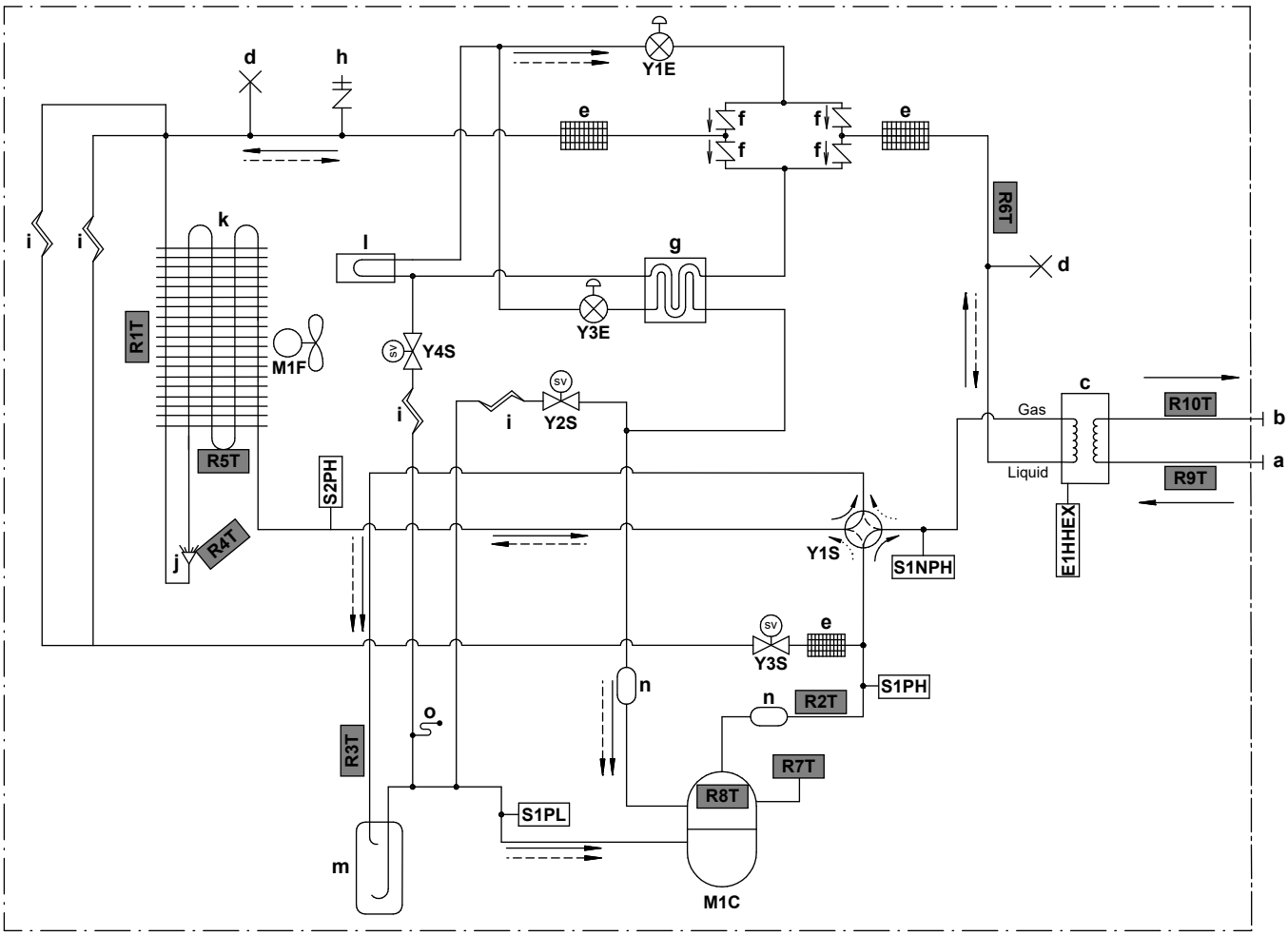
INFORMATION

Power OFF. When power is turned OFF and turned ON again, the recovery mode is deactivated automatically.

10 Technical data

The full set of the latest technical data is available at www.daikincomfort.com.

10.1 Piping diagram: Outdoor unit



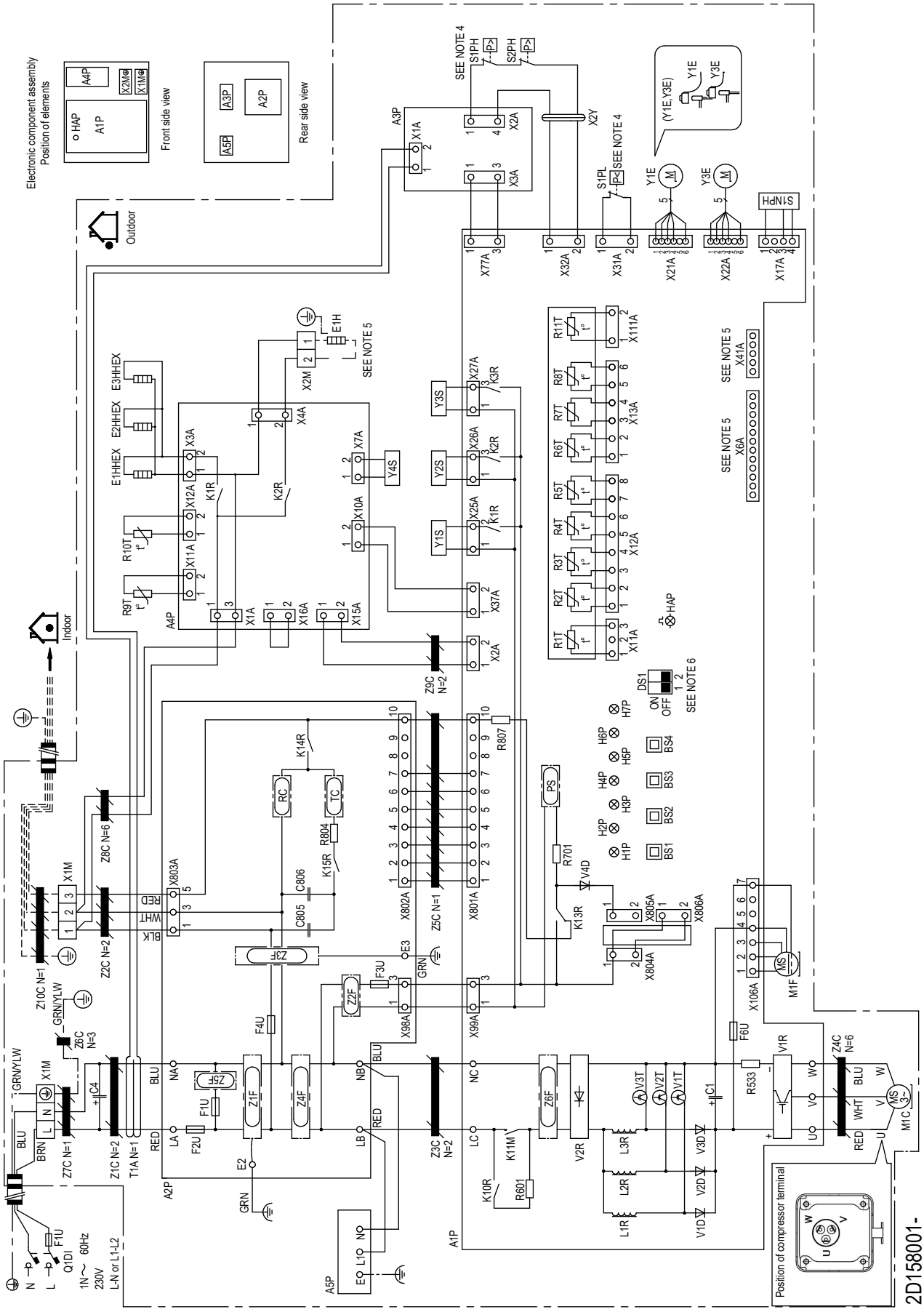
3D158015

Gas Gas
Liquid Liquid
a Water IN (screw connection, male, 1" NPT)
b Water OUT (screw connection, male, 1" NPT)
c Plate heat exchanger
d Pinched pipe
e Refrigerant filter
f One-way valve
g Economizer heat exchanger
h Service port 5/16" flare
i Capillary tube
j Distributor
k Air heat exchanger
l PCB cooling
m Accumulator
n Muffler
o Fusible plug
E1HHEX Plate heat exchanger heater
M1C Compressor
M1F Fan motor
S1PH High pressure switch (812 PSI (5.6 MPa))
S2PH High pressure switch (605 PSI (4.17 MPa))
S1PL Low pressure switch
S1NPH High pressure sensor
Y1E Electronic expansion valve (main)
Y3E Electronic expansion valve (injection)
Y1S Solenoid valve (4-way valve)
Y2S Solenoid valve (low pressure bypass)
Y3S Solenoid valve (hot gas bypass)
Y4S Solenoid valve (liquid injection)

Thermistors:
R1T Outdoor air
R2T Compressor discharge
R3T Compressor suction
R4T Air heat exchanger, distributor
R5T Air heat exchanger, middle
R6T Refrigerant liquid
R7T Compressor shell
R8T Compressor port
R9T Entering water
R10T Leaving water

Refrigerant flow:
Heating
Cooling

10.2 Wiring diagram: Outdoor unit



English	Translation
Electronic component assembly	Electronic component assembly
Front side view	Front side view
Indoor	Indoor
OFF	OFF
ON	ON
Outdoor	Outdoor
Position of compressor terminal	Position of compressor terminal
Position of elements	Position of elements
Rear side view	Rear side view
See note ***	See note ***

Notes:

1	Symbols:	
	L	Live
	N	Neutral
	⏚	Protective ground
		Clean ground
		Field wiring
		Option
		Terminal strip
		Terminal
		Connector
		Connection
2	Colors:	
	BLK	Black
	RED	Red
	BLU	Blue
	WHT	White
	GRN	Green
	YLW	Yellow
	PNK	Pink
	ORG	Orange
	GRY	Gray
	BRN	Brown
3	This wiring diagram applies only to the outdoor unit.	
4	When operating, do not short-circuit protective devices S1PH, S2PH and S1PL.	
5	Refer to the combination table and the option manual for how to connect the wiring to X6A, X41A and X2M.	
6	The factory setting of all switches is OFF. Do not change the setting of the selector switch (DS1).	

Legend:

A1P	Printed circuit board (main)
A2P	Printed circuit board (noise filter)
A3P	Printed circuit board (leakage current)
A4P	Printed circuit board (ACS)
A5P	Printed circuit board (flash)
BS1~BS4 (A1P)	Push button switch
C1~C806 (A1P, A2P)	Capacitor
DS1 (A1P)	DIP switch
E1H	Drain tube heater (field supplied)
E1HHEX~E3HHEX	Plate heat exchanger heaters
F1U	Field fuse (field supplied)
F1U~F4U (A2P)	Fuse
F6U (A1P)	Fuse (T 5.0 A / 250 V)
H1P~H7P (A1P)	Light-emitting diode (service monitor is orange)
HAP (A1P)	Light-emitting diode (service monitor is green)
K1R (A1P)	Magnetic relay (Y1S)
K1R (A4P)	Magnetic relay (E1HHEX~E3HHEX)
K2R (A1P)	Magnetic relay (Y2S)
K2R (A4P)	Magnetic relay (E1H)
K3R (A1P)	Magnetic relay (Y3S)
K10R (A1P)	Magnetic relay
K11M (A1P)	Magnetic contactor
K13R~K15R (A1P, A2P)	Magnetic relay
L1R~L3R (A1P)	Reactor
M1C	Compressor motor
M1F	Fan motor
PS (A1P)	Switching power supply
Q1DI	Ground leakage circuit breaker (30 mA) (field supplied)
R533~R807 (A1P, A2P)	Resistor
R1T	Thermistor (outdoor air)
R2T	Thermistor (compressor discharge)
R3T	Thermistor (compressor suction)
R4T	Thermistor (air heat exchanger, distributor)
R5T	Thermistor (air heat exchanger, middle)
R6T	Thermistor (refrigerant liquid)
R7T	Thermistor (compressor shell)
R8T	Thermistor (compressor port)
R9T	Thermistor (entering water)
R10T	Thermistor (leaving water)
R11T	Thermistor (fin)
RC (A2P)	Signal receiver circuit
S1NPH	High pressure sensor
S1PH, S2PH	High pressure switch
S1PL	Low pressure switch
T1A	Current transformer
TC (A2P)	Signal transmission circuit
V1D~V4D (A1P)	Diode
V1R (A1P)	IGBT power module
V2R (A1P)	Diode module
V1T~V3T (A1P)	Insulated Gate Bipolar Transistor (IGBT)
X1M, X2M	Terminal strip
Y1E	Electronic expansion valve (main)
Y3E	Electronic expansion valve (injection)
Y1S	Solenoid valve (4-way valve)
Y2S	Solenoid valve (low pressure bypass)
Y3S	Solenoid valve (hot gas bypass)
Y4S	Solenoid valve (liquid injection)
Z1C~Z10C	Noise filter (ferrite core)
Z1F~Z6F (A1P, A2P)	Noise filter

RECOGNIZED COMPONENT

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Our continuing commitment to quality products may mean a change in specifications without notice.

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