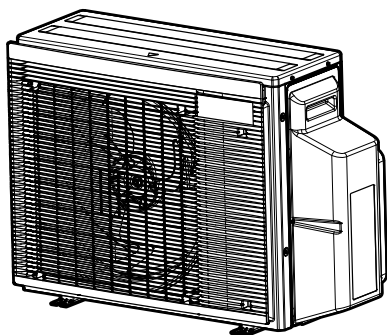




Installation manual



X Series



5XXM68A2V1B
5XXM90A2V1B

Installation manual
X Series

English

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1 About the documentation

1.1 Product code

5XXM68A, 5XXM90A

1.2 About this document



WARNING

Make sure installation, servicing, maintenance, repair and applied materials follow the instructions from Daikin (including all documents listed in "Documentation set") and, in addition, comply with applicable legislation and are performed by qualified persons only. In Europe and areas where IEC standards apply, EN/IEC 60335-2-40 is the applicable standard.

Target audience

Authorised installers



INFORMATION

This appliance is intended to be used by expert or trained users in shops, in light industry, and on farms, or for commercial and household use by lay persons.



INFORMATION

This document only describes installation instructions specific to the outdoor unit. For installation of the indoor unit (mounting the indoor unit, connecting the refrigerant piping to the indoor unit, connecting the electrical wiring to the indoor unit ...), see the installation manual of the indoor unit.

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 outdoor unit)
- **Outdoor unit installation manual:**
 - Installation instructions
 - Format: Paper (in the box of the outdoor unit)
- **Installer reference guide:**
 - Preparation of the installation, reference data, ...
 - Format: Digital files on <https://www.daikin.eu>. Use the search function 🔍 to find your model.

The latest revision of the supplied documentation is published on the regional Daikin website and is available via your dealer.

Scan the QR code below to find the full documentation set and more information about your product on the Daikin website.



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

Technical engineering data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of the latest technical data is available on the Daikin Business Portal (authentication required).

2 Specific installer safety instructions

Always observe the following safety instructions and regulations.

Unit installation (see "[4 Unit installation](#)" ▶ 5)



WARNING

Installation shall be done by an installer, the choice of materials and installation shall comply with the applicable legislation. In Europe, EN378 is the applicable standard.

Installation site (see "[4.1 Preparing the installation site](#)" ▶ 5)



CAUTION

- Check if the installation location can support the unit's weight. Poor installation is hazardous. It can also cause vibrations or unusual operating noise.
- Provide sufficient service space.
- Do NOT install the unit so that it is in contact with a ceiling or a wall, as this may cause vibrations.



WARNING

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (e.g. open flames, an operating gas appliance, or an operating electric heater). The room size shall be as specified in the General safety precaution.

Piping installation (see "[5 Piping installation](#)" ▶ 7)



CAUTION

Piping and joints of a split system shall be made with permanent joints when inside an occupied space except joints directly connecting the piping to the indoor units.



CAUTION

- No brazing or welding on site for units with R32 refrigerant charge during shipment.
- During installation of the refrigeration system, joining of parts with at least one part charged shall be performed taking into account the following requirements: inside occupied spaces non-permanent joints are NOT allowed for R32 refrigerant except for site made joints directly connecting the indoor unit to piping. Site made joints directly connecting piping to indoor units shall be of non-permanent type.



CAUTION

Do NOT connect the embedded branch piping and the outdoor unit when only carrying out piping work without connecting the indoor unit in order to add another indoor unit later.



WARNING

Connect the refrigerant piping securely before running the compressor. If the refrigerant piping is NOT connected and the stop valve is open when the compressor is run, air will be sucked in. This will cause abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.



CAUTION

- Incomplete flaring may cause refrigerant gas leakage.
- Do NOT re-use flares. Use new flares to prevent refrigerant gas leakage.
- Use flare nuts that are included with the unit. Using different flare nuts may cause refrigerant gas leakage.



CAUTION

Do NOT open the valves before flaring is complete. This would cause refrigerant gas leakage.



DANGER: RISK OF EXPLOSION

Do NOT open the stop valves before the vacuum drying is finished.

Charging refrigerant (see "[6 Charging refrigerant](#)" ▶ 10)



A2L

WARNING: MILDLY FLAMMABLE MATERIAL

The refrigerant inside this unit is mildly flammable.



WARNING

- The refrigerant inside the unit is mildly flammable, but normally does NOT leak. If the refrigerant leaks in the room and comes in contact with fire from a burner, a heater, or a cooker, this may result in fire, or the formation of a harmful gas.
- Turn OFF any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.
- Do NOT use the unit until a service person confirms that the part from which the refrigerant leaked has been repaired.



WARNING

- Only use R32 as refrigerant. Other substances may cause explosions and accidents.
- R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.



WARNING

NEVER directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.

Electrical installation (see "[7 Electrical installation](#)" ▶ 11)



WARNING

Do NOT extend the power supply or the interconnection cable by using wire connectors, wire connection clamps, taped wires, extension cords.
These can cause overheating, electric shock or fire.



WARNING

- All wiring MUST be performed by an authorised 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 legislation.

3 About the box



WARNING

- If the power supply has a missing or wrong N-phase, equipment might break down.
- Establish proper earthing. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earthing may cause electrical shocks.
- Install the required fuses or circuit breakers.
- 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 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

ALWAYS use multicore cable for power supply cables.



WARNING

Use an all-pole disconnection type breaker with at least 3 mm between the contact point gaps that provides full disconnection under overvoltage category III.



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.



WARNING

Do NOT connect the power supply to the indoor unit. This could result in electrical shock or fire.



WARNING

- Do NOT use locally purchased electrical parts inside the product.
- Do NOT branch the power supply for the drain pump, etc. from the terminal block. This could result in electrical shock or fire.



WARNING

Keep the interconnection wiring away from copper pipes without thermal insulation as such pipes will be very hot.



DANGER: RISK OF ELECTROCUTION

All electrical parts (including thermistors) are powered by the power supply. Do NOT touch them with bare hands.

Finishing the outdoor unit installation (see "[8 Finishing the outdoor unit installation](#)" ▶ 13))



DANGER: RISK OF ELECTROCUTION

- Make sure that the system is earthed properly.
- Turn OFF the power supply before servicing.
- Install the switch box cover before turning ON the power supply.

Maintenance and service (see "[9 Maintenance and service](#)" ▶ 13))



DANGER: RISK OF ELECTROCUTION



DANGER: RISK OF BURNING/SCALDING



DANGER: RISK OF ELECTROCUTION

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.



WARNING

- Before carrying out any maintenance or repair activity, ALWAYS switch off the circuit breaker on the supply panel, remove the fuses or open the protection devices of the unit.
- Do NOT touch live parts for 10 minutes after the power supply is turned off because of high voltage risk.
- Please note that some sections of the electric component box are hot.
- Make sure you do NOT touch a conductive section.
- Do NOT rinse the unit. This may cause electric shocks or fire.



DANGER: RISK OF ELECTROCUTION

- Use this compressor on a grounded system only.
- Turn the power off before servicing the compressor.
- Reattach the switch box cover and service lid after servicing.



CAUTION

ALWAYS wear safety glasses and protective gloves.



DANGER: RISK OF EXPLOSION

- Use a pipe cutter to remove the compressor.
- Do NOT use the brazing torch.
- Use approved refrigerants and lubricants only.



DANGER: RISK OF BURNING/SCALDING

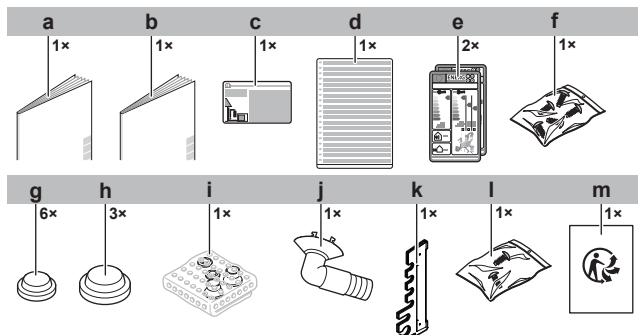
Do NOT touch the compressor with bare hands.

3 About the box

3.1 Outdoor unit

3.1.1 To remove the accessories from the outdoor unit

Make sure you have all following accessories delivered with the unit:



- a Outdoor unit installation manual
- b General safety precautions
- c Fluorinated greenhouse gases label
- d Multilingual fluorinated greenhouse gases label
- e Energy label
- f Screw bag. The screws will be used for fixing the electrical wire anchor bands.
- g Drain cap (small)

- h Drain cap (large)
- i Reducer assembly
- j Drain socket
- k Sound insulation plate
- l Screw bag. The screws will be used for fixing the sound insulation plate.
- m Triman logo addendum (for France)

4 Unit installation



WARNING

Installation shall be done by an installer, the choice of materials and installation shall comply with the applicable legislation. In Europe, EN378 is the applicable standard.

4.1 Preparing the installation site

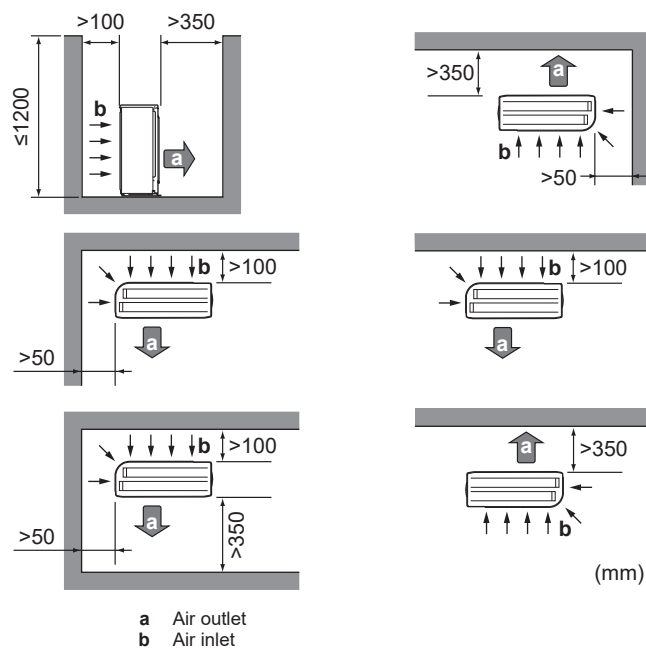


WARNING

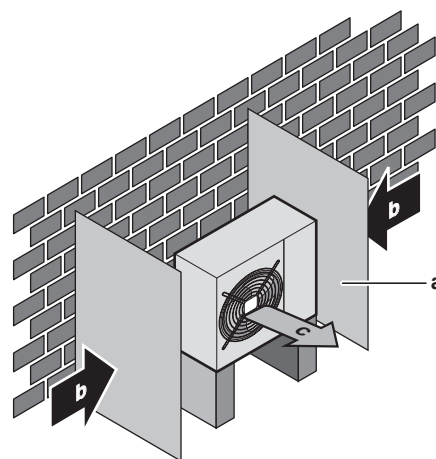
The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (e.g. open flames, an operating gas appliance, or an operating electric heater). The room size shall be as specified in the General safety precaution.

4.1.1 Installation site requirements of the outdoor unit

Mind the following spacing guidelines:



Allow 300 mm of work space below the ceiling surface and 250 mm for piping and electrical servicing.



- a Baffle plate
- b Prevailing wind direction
- c Air outlet

Do NOT install the unit in sound sensitive areas (e.g. near a bedroom), so that the operation noise will cause no trouble.

Note: If the sound is measured under actual installation conditions, the measured value might be higher than the sound pressure level mentioned in "Sound spectrum" in the data book due to environmental noise and sound reflections.



INFORMATION

The sound pressure level is less than 70 dBA.

The outdoor unit is designed for outdoor installation only, and for ambient temperatures within the following ranges (unless otherwise specified in the operation manual of the connected indoor unit):

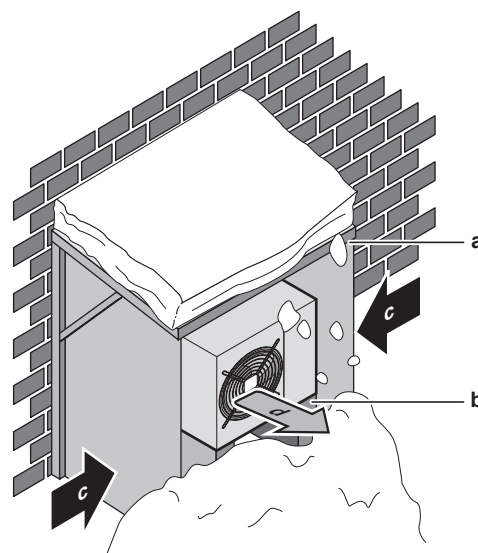
DX operation range	
Cooling mode	Heating mode
-10~50°C DB	-20~24°C DB

CHVX operation range	
Cooling mode	Heating mode
10~50°C DB	-20~25°C DB

CHVX - DHW operation range	
-20~43°C DB	

4.1.2 Additional installation site requirements of the outdoor unit in cold climates

Protect the outdoor unit against direct snowfall and take care that the outdoor unit is NEVER snowed up.



4 Unit installation

- a Snow cover or shed
- b Pedestal
- c Prevailing wind direction
- d Air outlet

It is recommended to provide at least 150 mm of free space below the unit (300 mm for heavy snowfall areas). Additionally, make sure the unit is positioned at least 100 mm above the maximum expected level of snow. If necessary, construct a pedestal. See "4.2 Mounting the outdoor unit" [p. 6] for more details.

In heavy snowfall areas it is very important to select an installation site where the snow will NOT affect the unit. If lateral snowfall is possible, make sure that the heat exchanger coil is NOT affected by the snow. If necessary, install a snow cover or shed and a pedestal.

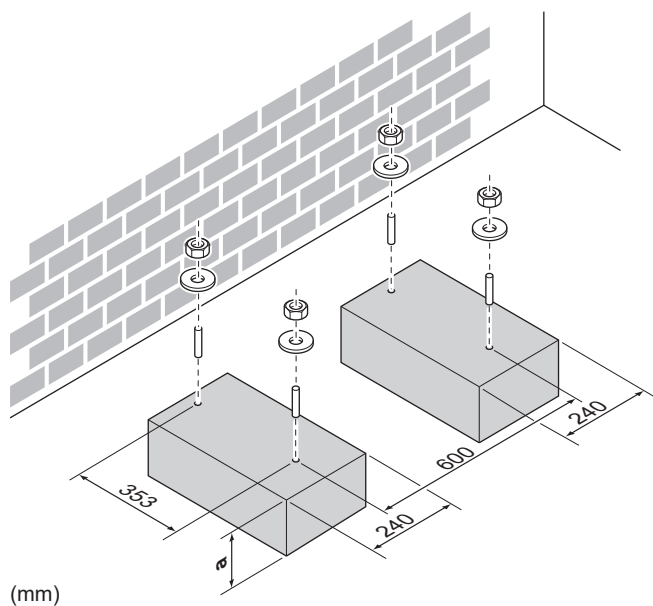
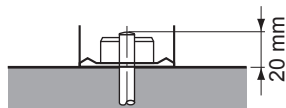
4.2 Mounting the outdoor unit

4.2.1 To provide the installation structure

Use a vibration-proof rubber (field supply) in cases where vibrations may be transmitted to the building.

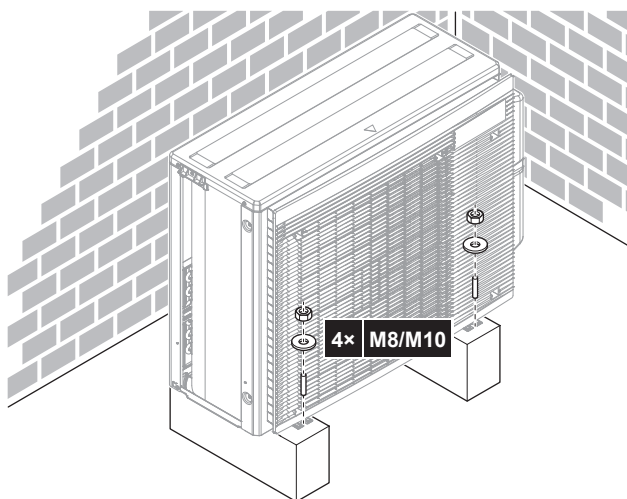
The unit may be installed directly on a concrete veranda or another solid surface as long as it provides proper drainage.

Prepare 4 sets of M8 or M10 anchor bolts, nuts and washers (field supply).



a 100 mm above expected level of snow

4.2.2 To install the outdoor unit



4.2.3 To provide drainage



NOTICE

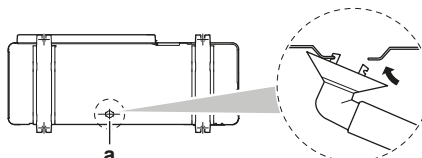
In cold areas, do NOT use a drain socket, hose and caps (large, small) with the outdoor unit. Take adequate measures so that the evacuated condensate CANNOT freeze.



NOTICE

If the drain holes of the outdoor unit are blocked up by a mounting base or floor surface, place additional foot bases ≤30 mm under the outdoor unit's feet.

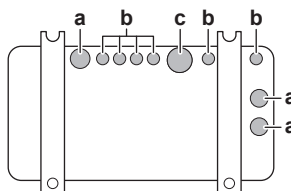
- Use a drain socket for drainage if necessary.



a Drain hole

To close the drain holes and attach the drain socket

- 1 Install drain caps (accessory h) and (accessory g). Make sure the edges of the drain caps close off the holes completely.
- 2 Install the drain socket.



- a Drain hole. Install a drain cap (large).
- b Drain hole. Install a drain cap (small).
- c Drain hole for drain socket

5 Piping installation

5.1 Preparing refrigerant piping

5.1.1 Refrigerant piping requirements



CAUTION

Piping and joints of a split system shall be made with permanent joints when inside an occupied space except joints directly connecting the piping to the indoor units.



CAUTION

- When **mechanical** connectors are re-used indoors, renew the sealing parts.
- When **flared joints** are re-used indoors, re-make the flared part.



NOTICE

The piping and other pressure-containing parts shall be suitable for refrigerant. Use phosphoric acid deoxidised seamless copper for refrigerant piping.

- Foreign materials inside pipes (including oils for fabrication) must be ≤ 30 mg/10 m.

Refrigerant piping diameter

5XXM68	
Liquid piping	Gas piping
5× Ø6.4 mm (1/4")	2× Ø9.5 mm (3/8")
	2× Ø12.7 mm (1/2")
	1× Ø15.9 mm (5/8")

5XXM90	
Liquid piping	Gas piping
5× Ø6.4 mm (1/4")	1× Ø9.5 mm (3/8")
	1× Ø12.7 mm (1/2")
	3× Ø15.9 mm (5/8")



INFORMATION

Usage of reducers might be required based on the indoor unit. See ["5.2.1 Connections between outdoor and indoor unit using reducers"](#) [p. 8] for more information.

Refrigerant piping material

Piping material

Phosphoric acid deoxidised seamless copper

Flare connections

Only use annealed material.

Piping temper grade and thickness

Outer diameter (Ø)	Temper grade	Thickness (t) ^(a)	
6.4 mm (1/4")	Annealed (O)	≥0.8 mm	
9.5 mm (3/8")			
12.7 mm (1/2")			
15.9 mm (5/8")		≥1 mm	

^(a) Depending on the applicable legislation and the maximum working pressure of the unit (see "PS High" on the unit name plate), larger piping thickness might be required.

5.1.2 Refrigerant piping insulation

- Use polyethylene foam as insulation material:
 - with a heat transfer rate between 0.041 and 0.052 W/mK (0.035 and 0.045 kcal/mh°C)
 - with a heat resistance of at least 120°C
- Insulation thickness:

Pipe outer diameter (Ø _p)	Insulation inner diameter (Ø _i)	Insulation thickness (t)
6.4 mm (1/4")	8~10 mm	≥10 mm
9.5 mm (3/8")	12~15 mm	≥13 mm
12.7 mm (1/2")	14~16 mm	≥13 mm
15.9 mm (5/8")	17~20 mm	≥13 mm



If the temperature is higher than 30°C and the humidity is higher than RH 80%, the thickness of the insulation materials should be at least 20 mm to prevent condensation on the surface of the insulation.

5.1.3 Refrigerant piping length and height difference

The shorter the refrigerant piping, the better the performance of the system.

The piping length and height differences must comply with the following requirements.

Shortest allowable length per room is 3 m.

For combination...	...refrigerant piping length to each indoor unit is:	...refrigerant piping total length is:
DX (except FBA) + 5XXM90	≤25 m	≤75 m
Tank unit + 5XXM90	≤30 m	
DX (except FBA) + 5XXM68	≤25 m	≤60 m
Tank unit + 5XXM68	≤30 m	
FBA71, 100 + 5XXM68	≤30 m	30 + 0.64× <i>tank unit length</i>
FBA71, 100, 125 + 5XXM90	≤40 m	40 + 0.64× <i>tank unit length</i>

5 Piping installation

For combination...	Unit	Outdoor unit installed LOWER than at least 1 indoor unit		Outdoor unit installed HIGHER than indoor unit	
		Height difference out-door-in-door	Height difference in-door-in-door	Height difference out-door-in-door	Height difference in-door-in-door
DX (except FBA71, 100, 125)	—	≤7.5 m	≤7.5 m	≤15 m	≤15 m
CHVX	—	≤15 m		≤30 m	
FBA71, 100, 125	—	≤30 m		≤30 m	
DX (except FBA) + CHVX	DX	≤7.5 m		≤15 m	
	CHVX	≤15 m		≤15 m	
FBA71, 100, 125 + CHVX	FBA71, 100, 125	≤30 m		≤30 m	
	CHVX	≤15 m		≤30 m	

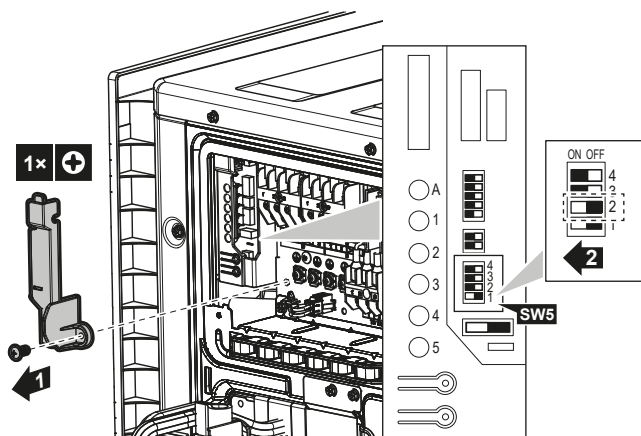


INFORMATION

If you connect the FBA unit with a height difference between the outdoor and indoor unit <15 m, slide the switch SW5-2 to the ON side, see the procedure below.

To turn the switch SW5-2 ON

- 1 Remove the switch cover on the service PCB.
- 2 Slide switch SW5-2 to the ON side.



5.2 Connecting the refrigerant piping



DANGER: RISK OF BURNING/SCALDING



CAUTION

- No brazing or welding on site for units with R32 refrigerant charge during shipment.
- During installation of the refrigeration system, joining of parts with at least one part charged shall be performed taking into account the following requirements: inside occupied spaces non-permanent joints are NOT allowed for R32 refrigerant except for site made joints directly connecting the indoor unit to piping. Site made joints directly connecting piping to indoor units shall be of non-permanent type.



CAUTION

Do NOT connect the embedded branch piping and the outdoor unit when only carrying out piping work without connecting the indoor unit in order to add another indoor unit later.

5.2.1 Connections between outdoor and indoor unit using reducers

Outdoor unit	Total indoor air conditioning units capacity class that can be connected to this outdoor unit
5XXM68	≤11 kW
5XXM90	≤15.6 kW



INFORMATION

For initial commissioning purposes, it is not required that all system components be installed at the same time. Please refer to the specification below.

Final installation

- To a hydro indoor unit and 2 to 4 DX indoor units

Temporary installation

- To a hydro indoor unit only
- To 2 to 4 DX indoor units only

Completion of the final installation is mandatory.

Note: Connecting only 1 indoor unit is NOT allowed, except when using model FBA71 or FBA100 with unit 5XXM68, or model FBA71, FBA100, or FBA125 with unit 5XXM90.

5XXM68

Port	Dimensions	Class	Tank volume	Reducer
A+B	Liquid Ø6.4 mm Gas Ø9.5 mm	15, 20, 25, 35, 42 ^(a)	—	—
C+D	Liquid Ø6.4 mm	15, 20, 25, 35, 42 ^(a)	—	2,4
	Gas Ø12.7 mm	42 ^(b) , 50, 60	—	—
		71 ^(c) , 100 ^(c)	—	Use option ASYCP1R–MD1
Tank	Liquid Ø6.4 mm Gas Ø15.9 mm	71	CHVX 180, 230	—

^(a) Excluding FTXJ.

^(b) Only for FTXJ.

^(c) For connection of the FBA use D port only.

5XXM90

Port	Dimensions	Class	Tank volume	Reducer
A	Liquid Ø6.4 mm	15, 20, 25, 35, 42 ^(a)	—	—
	Gas Ø9.5 mm			
B	Liquid Ø6.4 mm	15, 20, 25, 35, 42 ^(a)	—	2, 4
	Gas Ø12.7 mm			

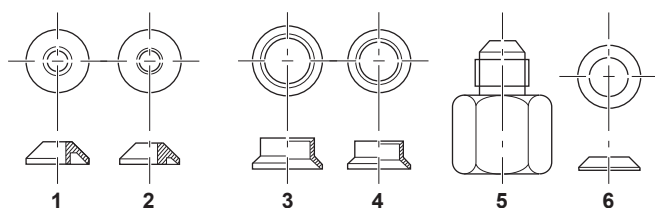
Port	Dimensions	Class	Tank volume	Reducer
C+D	Liquid Ø6.4 mm Gas Ø15.9 mm	15, 20, 25, 35, 42 ^(a)	—	5, 6
		42 ^(b) , 50, 60	—	3, 1
		71 ^(c)	—	—
		71 ^(d) , 100 ^(d) , 125 ^(d)	—	Use option ASYCPIR- MD1
To tank	Liquid Ø6.4 mm Gas Ø15.9 mm	71	CHVX 180, 230	—

^(a) Excluding FTXJ.

^(b) Only for FTXJ.

^(c) Only for FTXM71A.

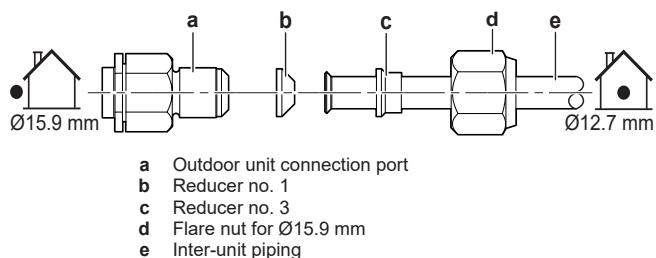
^(d) For connection of the FBA use D port only.



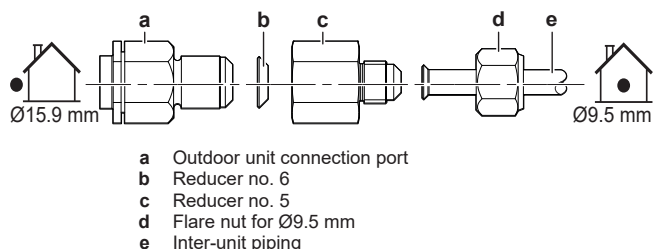
Reducer type	Connection
1	Ø15.9 mm → Ø12.7 mm
2	Ø12.7 mm → Ø9.5 mm
3	Ø15.9 mm → Ø12.7 mm
4	Ø12.7 mm → Ø9.5 mm
5	Ø15.9 mm → Ø9.5 mm
6	Ø15.9 mm → Ø9.5 mm

Connection examples:

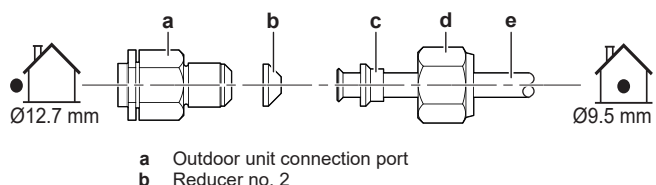
- Connecting a Ø12.7 mm pipe to a Ø15.9 mm gas pipe connection port



- Connecting a Ø9.5 mm pipe to a Ø15.9 mm gas pipe connection port



- Connecting a Ø9.5 mm pipe to a Ø12.7 mm gas pipe connection port



- c Reducer no. 4
- d Flare nut for Ø12.7 mm
- e Inter-unit piping



NOTICE

To prevent gas leakage, apply refrigeration oil for R32 (FW68DA):

- Ø9.5 mm → Ø15.9 mm, to both sides of the Reducer 6 (b) AND to the inner surface of the flare.
- Ø12.7 mm → Ø15.9 mm or Ø9.5 mm → Ø12.7 mm, to both sides of Reducer 1 or 2 (b).

Flare nut for (mm)	Tightening torque (N·m)
Ø9.5	33~39
Ø12.7	50~60
Ø15.9	62~75



NOTICE

Use an appropriate wrench to avoid damaging the connection thread by overtightening the flare nut. Be careful NOT to overtighten the nut, or the smaller pipe may be damaged (about 2/3~1× the normal torque).

5.2.2 To connect the refrigerant piping to the outdoor unit

- Piping length.** Keep field piping as short as possible.
- Piping protection.** Protect the field piping against physical damage.



WARNING

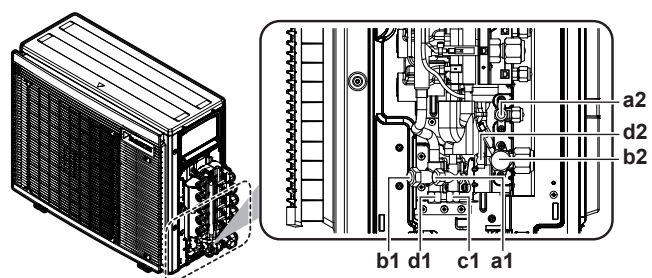
Connect the refrigerant piping securely before running the compressor. If the refrigerant piping is NOT connected and the stop valve is open when the compressor is run, air will be sucked in. This will cause abnormal pressure in the refrigeration cycle, which may result in equipment damage and even injury.



NOTICE

- Use the flare nut fixed to the main unit.
- To prevent gas leakage, apply refrigeration oil only to the inside of the flare. Use refrigeration oil for R32 (Example: FW68DA, SUNISO Oil).
- Do NOT reuse joints.

- Connect the liquid refrigerant connection from the indoor unit to the liquid stop valve of the outdoor unit.



To air-conditioning unit:

- a1 Liquid stop valve
- b1 Gas stop valve
- c1 Liquid service port
- d1 Gas service port

To tank:

- a2 Liquid stop valve
- b2 Gas stop valve
- d2 Gas service port

- Connect the gas refrigerant connection from the indoor unit to the gas stop valve of the outdoor unit.

6 Charging refrigerant

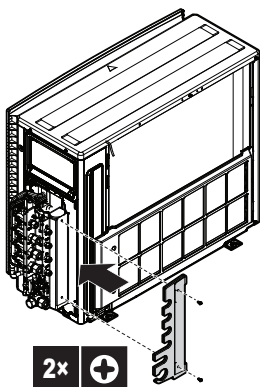


NOTICE

It is recommended that the refrigerant piping between indoor and outdoor unit is installed in a ducting or the refrigerant piping is wrapped with finishing tape.

5.2.3 To install sound insulation

After connecting piping, mount sound insulation (accessory k) on the outdoor unit using two screws (accessory l) as it is shown in picture below.



5.3 Checking the refrigerant piping

5.3.1 To check for leaks



NOTICE

Do NOT exceed the unit's maximum working pressure (see "PS High" on the unit name plate).



NOTICE

ALWAYS use a recommended bubble test solution from your wholesaler.

NEVER use soap water:

- Soap water may cause cracking of components, such as flare nuts or stop valve caps.
- Soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold.
- Soap water contains ammonia which may lead to corrosion of flared joints (between the brass flare nut and the copper flare).

- 1 Charge the system with nitrogen gas up to a gauge pressure of at least 200 kPa (2 bar). It is recommended to pressurize to 3000 kPa (30 bar) or higher (depending on local legislation) to detect small leaks.
- 2 Check for leaks by applying the bubble test solution to all connections.
- 3 Discharge all nitrogen gas.

5.3.2 To perform vacuum drying



DANGER: RISK OF EXPLOSION

Do NOT open the stop valves before the vacuum drying is finished.



NOTICE

Connect the vacuum pump to **both** the service ports of the gas stop valves.

- 1 Vacuum the system until the pressure reaches a target vacuum of -100.7 kPa (-1.007 bar)(5 Torr absolute).
- 2 Leave as is for 4-5 minutes and check the pressure:

If the pressure...	Then...
Does not change	There is no moisture in the system. This procedure is finished.
Increases	There is moisture in the system. Go to the next step.

- 3 Vacuum the system for at least two hours to a target vacuum of -100.7 kPa (-1.007 bar)(5 Torr absolute).
- 4 After turning the pump OFF, check the pressure for at least one hour.
- 5 If you do NOT reach the target vacuum or CANNOT maintain the vacuum for one hour, do the following:
 - Check for leaks again.
 - Perform vacuum drying again.



NOTICE

Make sure to open the stop valves after installing the refrigerant piping and performing vacuum drying. Running the system with the stop valves closed may break the compressor.

6 Charging refrigerant

6.1 About the refrigerant

This product contains fluorinated greenhouse gases. Do NOT vent gases into the atmosphere.

Refrigerant type: R32

Global warming potential (GWP) value: 675

Periodical inspections for refrigerant leaks may be required depending on the applicable legislation. Contact your installer for more information.



A2L

WARNING: MILDLY FLAMMABLE MATERIAL

The refrigerant inside this unit is mildly flammable.



WARNING

- The refrigerant inside the unit is mildly flammable, but normally does NOT leak. If the refrigerant leaks in the room and comes in contact with fire from a burner, a heater, or a cooker, this may result in fire, or the formation of a harmful gas.
- Turn OFF any combustible heating devices, ventilate the room, and contact the dealer where you purchased the unit.
- Do NOT use the unit until a service person confirms that the part from which the refrigerant leaked has been repaired.



WARNING

The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (e.g. open flames, an operating gas appliance, or an operating electric heater). The room size shall be as specified in the General safety precaution.



WARNING

- Do NOT pierce or burn refrigerant cycle parts.
- Do NOT use cleaning materials or means to accelerate the defrosting process other than those recommended by the manufacturer.
- Be aware that the refrigerant inside the system is odourless.

**WARNING**

NEVER directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.

**NOTICE**

Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and CO₂ equivalent.

Formula to calculate the quantity in CO₂ equivalent tonnes: GWP value of the refrigerant × total refrigerant charge [in kg]/1000

Contact your installer for more information.

6.2 To determine the additional refrigerant amount

In case of connection FBA71, 100, 125

1 Calculate the **total required charge (RT)** by using the following formula:

- **5XXM68:** $RT = 0.9 \text{ kg} + 0.055 \text{ (kg)} \times \text{FBA piping length (m)} + 0.02 \text{ (kg)} \times \text{tank unit piping length (m)}$
- **5XXM90:** $RT = 1.1 \text{ kg} + 0.055 \text{ (kg)} \times \text{FBA piping length (m)} + 0.02 \text{ (kg)} \times \text{tank unit piping length (m)}$

Note: Total required charge cannot be higher than maximum allowable refrigerant charge amount.

Note: If difference between "total required charge" and nominal charge is >0 use the following formula instead:

- 2 Additional charge (R) = total required charge - nominal charge (for 90 class 2.4 kg, for 68 class 2.0 kg)

For connection with other indoor units

If the total liquid piping length is...	Then...
≤30 m	Do NOT add additional refrigerant.
>30 m	$R = (\text{total length (m) of liquid piping} - 30 \text{ m}) \times 0.020$ $R = \text{Additional charge (kg) (rounded in units of 0.1 kg)}$

**INFORMATION**

Piping length is the one-way length of liquid piping.

Maximum allowable refrigerant charge amount:

5XXM68	2.6 kg
5XXM90	3.3 kg

6.3 To determine the complete recharge amount

**INFORMATION**

If a complete recharge is necessary, the total refrigerant charge is: the factory refrigerant charge (see unit name plate) + the determined additional amount.

6.4 To charge additional refrigerant

**WARNING**

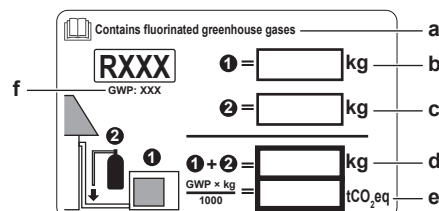
- Only use R32 as refrigerant. Other substances may cause explosions and accidents.
- R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.

Prerequisite: Before charging refrigerant, make sure the refrigerant piping is connected and checked (leak test and vacuum drying).

- 1 Connect the refrigerant cylinder to the service port.
- 2 Charge the additional refrigerant amount.
- 3 Open the gas stop valve.

6.5 To fix the fluorinated greenhouse gases label

- 1 Fill in the label as follows:



- If a multilingual fluorinated greenhouse gases label is delivered with the unit (see accessories), peel off the applicable language and stick it on top of **a**.
- Factory refrigerant charge: see unit name plate
- Additional refrigerant amount charged
- Total refrigerant charge
- Quantity of fluorinated greenhouse gases** of the total refrigerant charge expressed as tonnes CO₂ equivalent.
- GWP = Global Warming Potential

**NOTICE**

Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and CO₂ equivalent.

Formula to calculate the quantity in CO₂ equivalent tonnes: GWP value of the refrigerant × total refrigerant charge [in kg] / 1000

Use the GWP value mentioned on the refrigerant charge label.

- 2 Fix the label on the inside of the outdoor unit near the gas and liquid stop valves.

6.6 To check refrigerant piping joints for leaks after charging refrigerant

- 1 Perform the leak tests see "5.3 Checking the refrigerant piping" [p. 10].
- 2 Charge refrigerant.
- 3 Check for refrigerant leaks after charging (see below)

Tightness test of field-made refrigerant joints indoors

- 1 Use a leakage test method with a minimum sensitivity of 5 g of refrigerant/year. Test leaks using a pressure of at least 0.25 times the maximum working pressure (see "PS High" on the unit nameplate).

If a leak is detected

- 1 Recover the refrigerant, repair the joint, and repeat the test.

7 Electrical installation

**DANGER: RISK OF ELECTROCUTION****WARNING**

ALWAYS use multicore cable for power supply cables.

7 Electrical installation



WARNING

Use an all-pole disconnection type breaker with at least 3 mm between the contact point gaps that provides full disconnection under overvoltage category III.



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.



WARNING

Do **NOT** connect the power supply to the indoor unit. This could result in electrical shock or fire.



WARNING

- Do **NOT** use locally purchased electrical parts inside the product.
- Do **NOT** branch the power supply for the drain pump, etc. from the terminal block. This could result in electrical shock or fire.



WARNING

Keep the interconnection wiring away from copper pipes without thermal insulation as such pipes will be very hot.



DANGER: RISK OF ELECTROCUTION

All electrical parts (including thermistors) are powered by the power supply. Do **NOT** touch them with bare hands.

7.1 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.



NOTICE

For power supply cable, if stranded wires are used, make sure to use round crimp-style terminal.

Power supply	
Voltage	220~240 V
Frequency	50 Hz
Phase	1~
Current	25.2 A

Components	
Power supply cable	MUST comply with national wiring regulation 3-core cable Wire size based on the current, but not less than 4 mm ²
Interconnection cable (indoor↔outdoor or indoor↔user interface)	Only use harmonised wire providing double insulation and suitable for applicable voltage 4-core cable Minimum size 1.5 mm ²
Recommended circuit breaker	32 A
Earth leakage circuit breaker / residual current circuit breaker	MUST comply with national wiring regulation

Electrical equipment must comply with EN/IEC 61000-3-12, the European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤75 A per phase.

7.2 To connect the electrical wiring to the outdoor unit

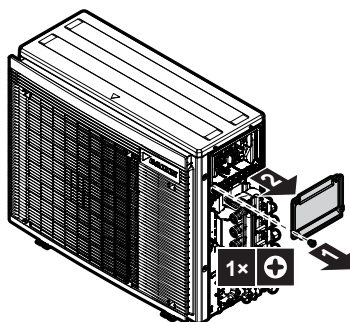


WARNING

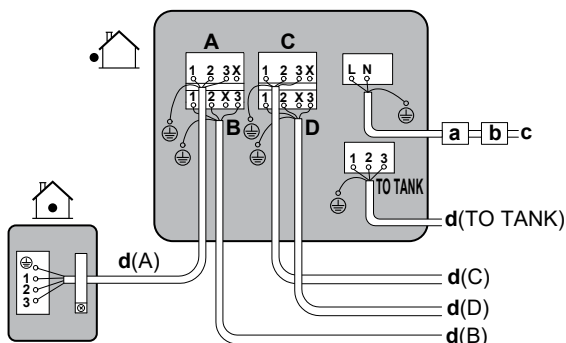
Do **NOT** extend the power supply or the interconnection cable by using wire connectors, wire connection clamps, taped wires, extension cords.

These can cause overheating, electric shock or fire.

- 1 Remove the switch box cover (1 screw).

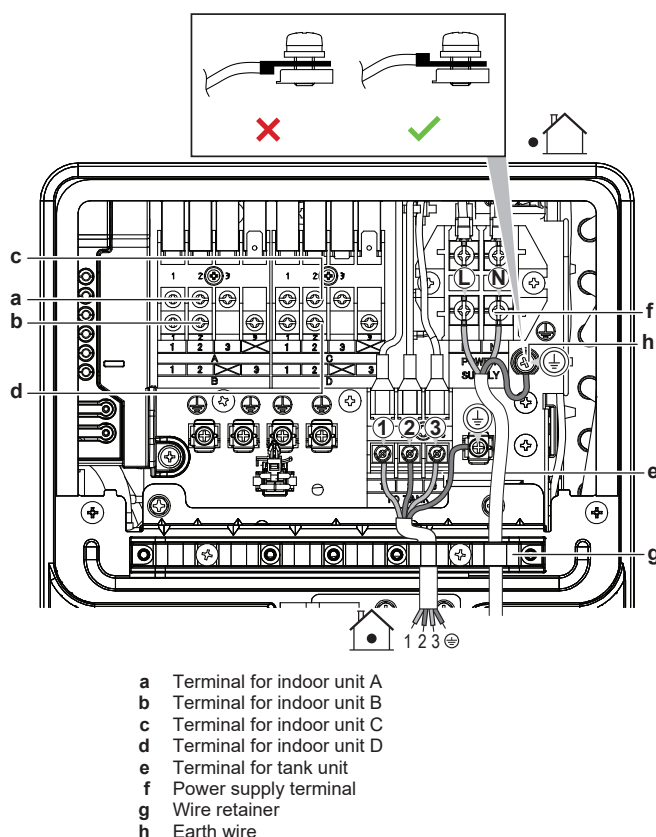


- 2 Connect the wires between the indoor and outdoor units so that the terminal numbers match. Make sure to match the symbols for piping and wiring.
- 3 Make sure to connect correct wiring to correct room.



- A Terminal for room A
- B Terminal for room B
- C Terminal for room C
- D Terminal for room D
- TO TANK Terminal for tank unit
- a Circuit breaker
- b Residual current device
- c Power supply wire
- d Interconnection wire for room (A, B, C, D, TO TANK)

- 4 Tighten the terminal screws securely using a Phillips screwdriver.
- 5 Check that the wires do **NOT** disconnect by pulling them lightly.
- 6 Firmly secure the wire retainer using screws (accessory f) to avoid external stress on wire terminations.
- 7 Pass the wiring through the cut-out on the bottom of the protection plate.
- 8 Make sure that the electrical wiring does **NOT** make contact with the gas piping.



9 Reattach the switch box cover and the service cover.

8 Finishing the outdoor unit installation

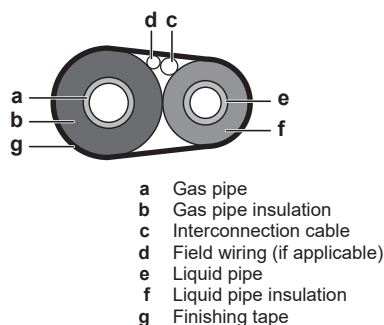
8.1 To finish the outdoor unit installation



DANGER: RISK OF ELECTROCUTION

- Make sure that the system is earthed properly.
- Turn OFF the power supply before servicing.
- Install the switch box cover before turning ON the power supply.

1 Insulate and fix the refrigerant piping and cables as follows:



2 Install the service cover.

9 Maintenance and service



NOTICE

General maintenance/inspection checklist. Next to the maintenance instructions in this chapter, a general maintenance/inspection checklist is also available on the Daikin Business Portal (authentication required).

The general maintenance/inspection checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during maintenance.



NOTICE

Maintenance **MUST** be done by an authorised installer or service agent.

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



NOTICE

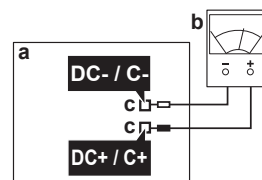
Applicable legislation on **fluorinated greenhouse gases** requires that the refrigerant charge of the unit is indicated both in weight and CO₂ equivalent.

Formula to calculate the quantity in CO₂ equivalent tonnes: GWP value of the refrigerant × total refrigerant charge [in kg] / 1000



DANGER: RISK OF ELECTROCUTION

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.



- a Main printed circuit board
b Multimeter
c Residual voltage measuring points

10 Configuration



INFORMATION

Following field settings are applicable only for direct expansion indoor units (DX). For the tank unit field setting, refer to the installation manual of the tank unit.

10.1 About standby electricity saving function



INFORMATION

This function is available only for the indoor units listed below.

The standby electricity saving function:

- turns OFF the power supply to the outdoor unit and,
- turns ON the standby electricity saving mode on the indoor unit.

The standby electricity saving function works with following units:

10 Configuration



FTXM, FTXJ, FVXM, FTXA, CTXA, CTXM, CVXM, FTXP

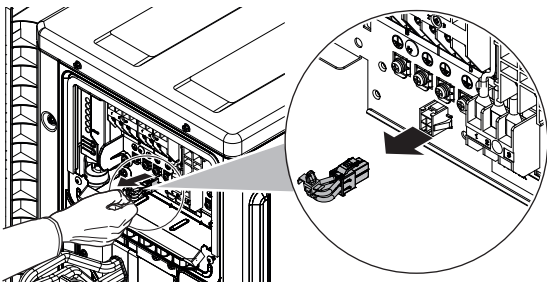
If another indoor unit is used, or in the case of a tank-only connection, the connector for standby electricity saving **MUST** be plugged in.

The standby electricity saving function is turned OFF before shipping.

10.1.1 To turn ON standby electricity saving function

Prerequisite: The main power supply **MUST** be turned OFF.

- 1 Remove the service cover.
- 2 Disconnect the selective standby electricity saving connector.



- 3 Turn ON the main power supply.

10.2 About priority room function



INFORMATION

- The priority room function requires initial settings to be made during the installation of the unit. Ask the customer in which rooms he plans to use this function and make the necessary settings during installation.
- The priority room setting is only applicable for an air conditioner indoor unit and only one room can be set.

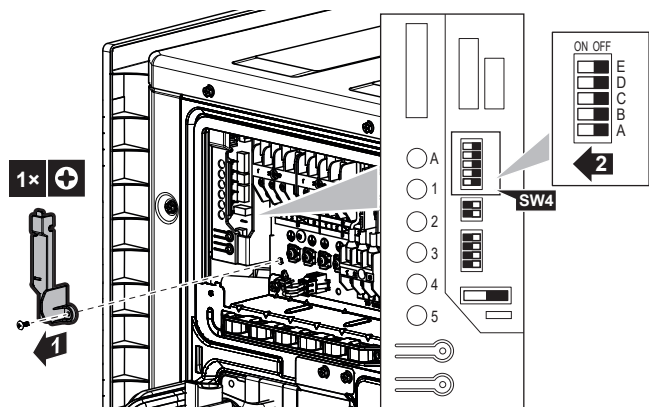
The indoor unit for which the priority room setting is applied takes priority in the following cases:

- **Operation mode priority:** If the priority room function is set on an indoor unit, all other indoor units enter the standby mode.
- **Priority during high-power operation:** If the indoor unit on which the priority room function is set operates at high power, the other indoor units will run with reduced capabilities.
- **Quiet operation priority:** If the indoor unit on which the priority room function is set to quiet operation, the outdoor unit will also run quietly.

Ask the customer in which rooms he plans to use this function and make the necessary settings during installation. Setting it in the guest rooms is convenient.

10.2.1 To set the priority room function

- 1 Remove the switch cover on the service PCB.
- 2 Set the switch (SW4) for the indoor unit for which you want to activate the priority room function to ON.



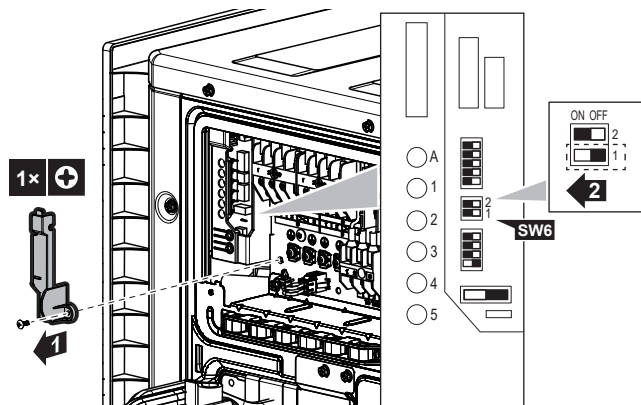
- 3 Reset the power.

10.3 About night quiet mode

The night quiet mode function makes the outdoor unit run more quietly at nighttime. This will reduce the cooling capacity of the unit. Explain Night quiet mode to the customer and confirm if customer wants to use this mode.

10.3.1 To turn ON the night quiet mode

- 1 Remove the switch cover on the service PCB.



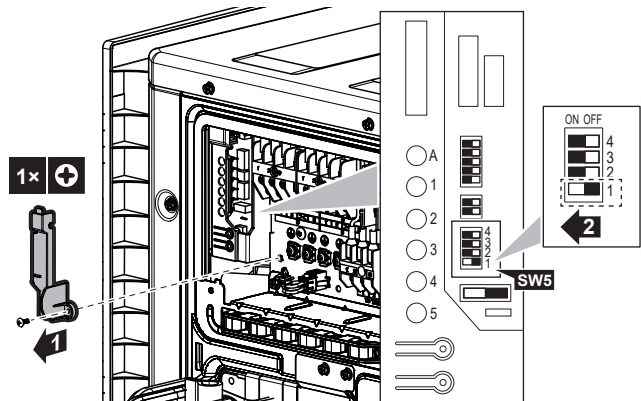
- 2 Set the night quiet mode switch (SW6-1) to ON.

10.4 About heat mode lock

Heat mode lock limits the unit to heat operation.

10.4.1 To turn ON heat mode lock

- 1 Remove the switch cover on the service PCB.
- 2 Set the heat mode lock switch (SW5-1) to ON.



11 Commissioning



NOTICE

General commissioning checklist. Next to the commissioning instructions in this chapter, a general commissioning checklist is also available on the Daikin Business Portal (authentication required).

The general commissioning checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during commissioning and hand-over to the user.



NOTICE

ALWAYS operate the unit with thermistors and/or pressure sensors/switches. If NOT, burning of the compressor might be the result.



INFORMATION

In the case of an outdoor unit and tank-only connection, the backup heater may be used instead of the heat pump during cold outdoor conditions or high initial water temperature. This can occur within the first 7 hours after the power supply is turned on to ensure reliable compressor operation.

11.1 Checklist before commissioning

- 1 After the installation of the unit, check the items listed below.
- 2 Close the unit.
- 3 Power up the unit.

☐	The indoor unit is properly mounted.
☐	The outdoor unit is properly mounted.
☐	The system is properly earthed and the earth terminals are tightened.
☐	The power supply voltage matches the voltage on the identification label of the unit.
☐	There are NO loose connections or damaged electrical components in the switch box.
☐	There are NO damaged components or squeezed pipes on the inside of the indoor and outdoor units.
☐	There are NO refrigerant leaks .
☐	The refrigerant pipes (gas and liquid) are thermally insulated.
☐	The correct pipe size is installed and the pipes are properly insulated.
☐	The stop valves (gas and liquid) on the outdoor unit are fully open.
☐	Drainage Make sure drainage flows smoothly. Possible consequence: Condensate water might drip.
☐	The indoor unit receives the signals of the user interface .
☐	The specified wires are used for the interconnection cable .
☐	The fuses, circuit breakers , or locally installed protection devices are installed according to this document, and have NOT been bypassed.
☐	Check if marks (room A~D and TO TANK) on the wiring and piping match for each connected unit.



Check if the priority room setting is NOT set for 2 or more rooms. Keep in mind that the tank unit for Multi shall NOT be selected as the priority room.

11.2 Checklist during commissioning

☐	To perform a wiring check.
☐	To perform an air purge .
☐	To perform a test run .

11.3 Trial operation and testing

☐	Before starting the test run, measure the voltage at the primary side of the safety breaker .
☐	The piping and wiring work match.
☐	The stop valves (gas and liquid) on the outdoor unit are fully open.

Initialization of the Multi system can take several minutes depending on the number of indoor units and options used.

11.3.1 About wiring error check



INFORMATION

This function is available only for the air-conditioning indoor units. The tank unit wiring **MUST** be checked manually, automatic correction is NOT possible.

The wiring error check function will check and automatically correct any wiring errors. This is useful for checking wiring that CANNOT be checked directly, such as underground wiring.

This function CANNOT be used within 3 minutes after activating the safety breaker or when the outside air temperature is $\leq 10^{\circ}\text{C}$ and if water temperature in the tank unit is $\geq 20^{\circ}\text{C}$.

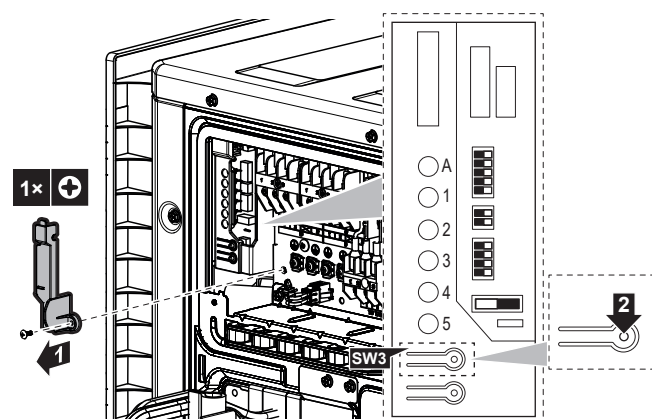
To perform a wiring error check



INFORMATION

You only have to perform a wiring error check if you are not sure that the electrical wiring and piping is connected correctly.

- 1 Remove the service PCB switch cover.



- 2 Press shortly the wiring error check switch (SW3) on the outdoor unit service PCB.

Result: The service monitor LEDs indicate whether correction is possible or not. For details about how to read the LED display, refer to the service manual.

12 Disposal

Result: Wiring errors will be corrected after 15-20 minutes. If automatic correction is not possible, check the indoor unit wiring and piping in the usual way.



INFORMATION

- The number of LEDs displayed depends on the number of rooms.
- The wiring error check function will NOT work if outside temperature is $\leq 10^{\circ}\text{C}$ and if water temperature in the tank unit is $\geq 20^{\circ}\text{C}$.
- After wiring error check operation is completed, LED indication will continue until normal operation starts.
- Follow the product diagnosis procedures. For details of product error diagnosis refer to service manual.

Status of LEDs:

- All LEDs flash: automatic correction is NOT possible.
- LEDs flash alternately: automatic correction is completed.
- One or more LEDs are permanently on: abnormal stop (follow the diagnosis procedure on the back of the right side plate and refer to service manual).

11.3.2 To perform a test run



INFORMATION

For the tank unit test run procedure, refer to installation manual of the connected tank unit.



INFORMATION

If the unit runs into an error during commissioning, see the service manual for the detailed troubleshooting guidelines.

Prerequisite: Power supply MUST be in the specified range.

Prerequisite: Test run operation may be done in cooling or heating mode.

Prerequisite: Test run should be done in accordance with the operation manual of the indoor unit to make sure that all functions and parts are working properly.

- In cooling mode, select the lowest programmable temperature. In heating mode, select the highest programmable temperature.
- Measure the temperature at the indoor unit inlet and outlet after running the unit for about 20 minutes. The difference should be more than 8°C (cooling) or 20°C (heating).
- First check operation of each unit individually, then check simultaneous operation of all indoor units. Check both heating and cooling operation.
- When test run is finished, set the temperature to a normal level. In cooling mode: $26\sim 28^{\circ}\text{C}$, in heating mode: $20\sim 24^{\circ}\text{C}$.



INFORMATION

- Test run can be disabled if necessary.
- After the unit is turned OFF, it cannot be started again for 3 minutes.
- When the test run is started in the heat mode right after turning the safety breaker on, in some cases no air will be output for about 15 minutes in order to protect the unit.
- During cooling operation, frost may form on the gas stop valve or other parts. This is normal.



INFORMATION

- Even if the unit is turned OFF, it consumes electricity.
- When the power turns back on after a power break, the previously selected mode will be resumed.

11.4 Starting up the outdoor unit

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

12 Disposal



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 legislation. Units MUST be treated at a specialised treatment facility for reuse, recycling and recovery.



INFORMATION

To protect the environment, make sure to perform an automatic pump down operation when relocating or dismantling the unit. For the pump down procedure, refer to the service manual or the installer reference guide.

13 Technical data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of the latest technical data is available on the Daikin Business Portal (authentication required).

13.1 Wiring diagram

The wiring diagram is delivered with the unit, located inside of the outdoor unit (bottom side of the top plate).

13.1.1 Unified wiring diagram legend

For applied parts and numbering, refer to the wiring diagram on the unit. Part numbering is by Arabic numbers in ascending order for each part and is represented in the overview below by "*" in the part code.

Symbol	Meaning	Symbol	Meaning
	Circuit breaker		Protective earth
			Noiseless earth
			Protective earth (screw)
	Connection		Rectifier
	Connector		Relay connector
	Earth		Short-circuit connector
	Field wiring		Terminal
	Fuse		Terminal strip
	Indoor unit		Wire clamp
	Outdoor unit		Heater
	Residual current device		

Symbol	Colour	Symbol	Colour
BLK	Black	ORG	Orange
BLU	Blue	PNK	Pink
BRN	Brown	PRP, PPL	Purple
GRN	Green	RED	Red

Symbol	Colour	Symbol	Colour
GRY	Grey	WHT	White
SKY BLU	Sky blue	YLW	Yellow

Symbol	Meaning
A*P	Printed circuit board
BS*	Pushbutton ON/OFF, operation switch
BZ, H*O	Buzzer
C*	Capacitor
AC*, CN*, E*, HA*, HE*, HL*, HN*, HR*, MR*_A, MR*_B, S*, U, V, W, X*A, K*R_*, NE	Connection, connector
D*, V*D	Diode
DB*	Diode bridge
DS*	DIP switch
E*H	Heater
FU*, F*U, (for characteristics, refer to PCB inside your unit)	Fuse
FG*	Connector (frame ground)
H*	Harness
H*P, LED*, V*L	Pilot lamp, light emitting diode
HAP	Light emitting diode (service monitor green)
HIGH VOLTAGE	High voltage
IES	Intelligent eye sensor
IPM*	Intelligent power module
K*R, KCR, KFR, KHuR, K*M	Magnetic relay
L	Live
L*	Coil
L*R	Reactor
M*	Stepper motor
M*C	Compressor motor
M*F	Fan motor
M*P	Drain pump motor
M*S	Swing motor
MR*, MRCW*, MRM*, MRN*	Magnetic relay
N	Neutral
NE	Noiseless earth
n=*, N=*	Number of passes through ferrite core
PAM	Pulse-amplitude modulation
PCB*	Printed circuit board
PM*	Power module
PS	Switching power supply
PTC*	PTC thermistor

Symbol	Meaning
Q*	Insulated gate bipolar transistor (IGBT)
Q*C	Circuit breaker
Q*DI, KLM	Earth leak circuit breaker
Q*L	Overload protector
Q*M	Thermo switch
Q*R	Residual current device
R*	Resistor
R*T	Thermistor
RC	Receiver
S*C	Limit switch
S*L	Float switch
S*NG	Refrigerant leak detector
S*NPH	Pressure sensor (high)
S*NPL	Pressure sensor (low)
S*PH, HPS*	Pressure switch (high)
S*PL	Pressure switch (low)
S*T	Thermostat
S*RH	Humidity sensor
S*W, SW*	Operation switch
SA*, F1S	Surge arrester
SR*, WLU	Signal receiver
SS*	Selector switch
SHEET METAL	Terminal strip fixed plate
T*R	Transformer
TC, TRC	Transmitter
V*, R*V	Varistor
V*R	Diode bridge, Insulated-gate bipolar transistor (IGBT) power module
WRC	Wireless remote controller
X*	Terminal
X*M	Terminal strip (block)
Y*E	Electronic expansion valve coil
Y*R, Y*S	Reversing solenoid valve coil
Z*C	Ferrite core
ZF, Z*F	Noise filter

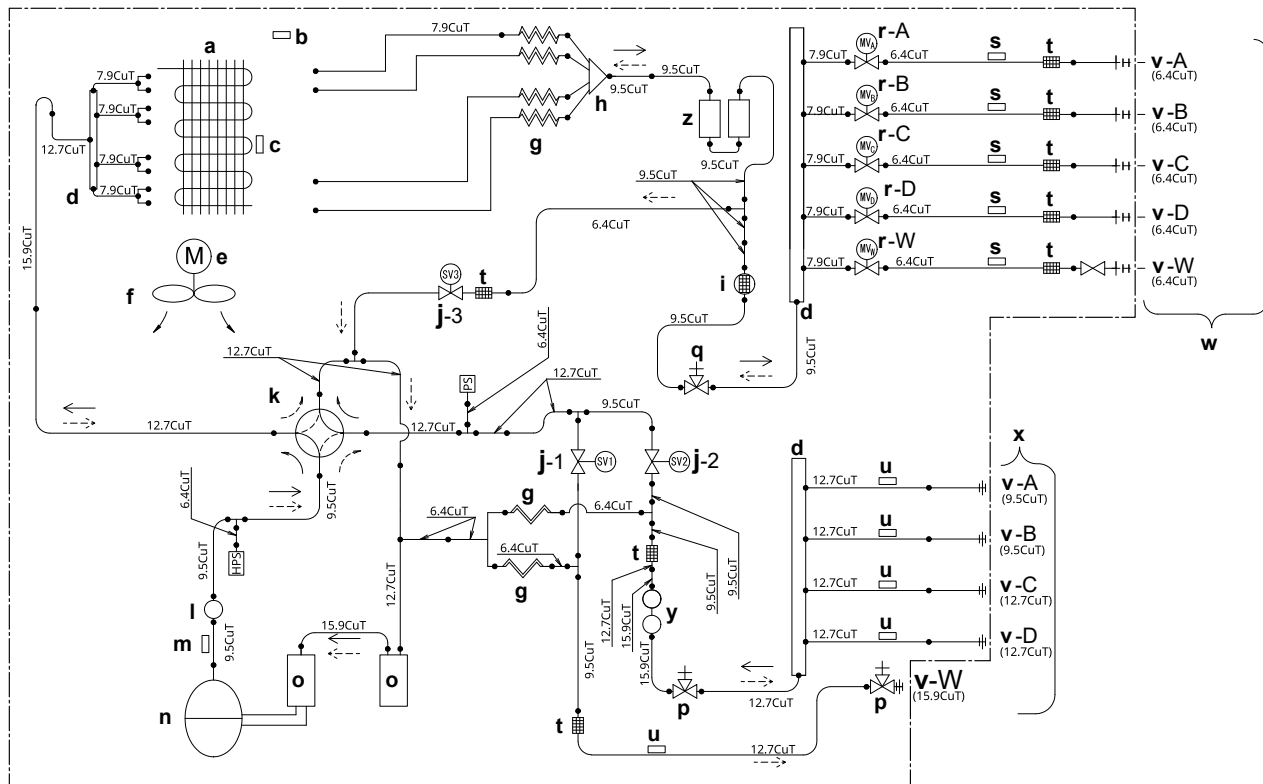
13.2 Piping diagram: Outdoor unit

Component PED category classification:

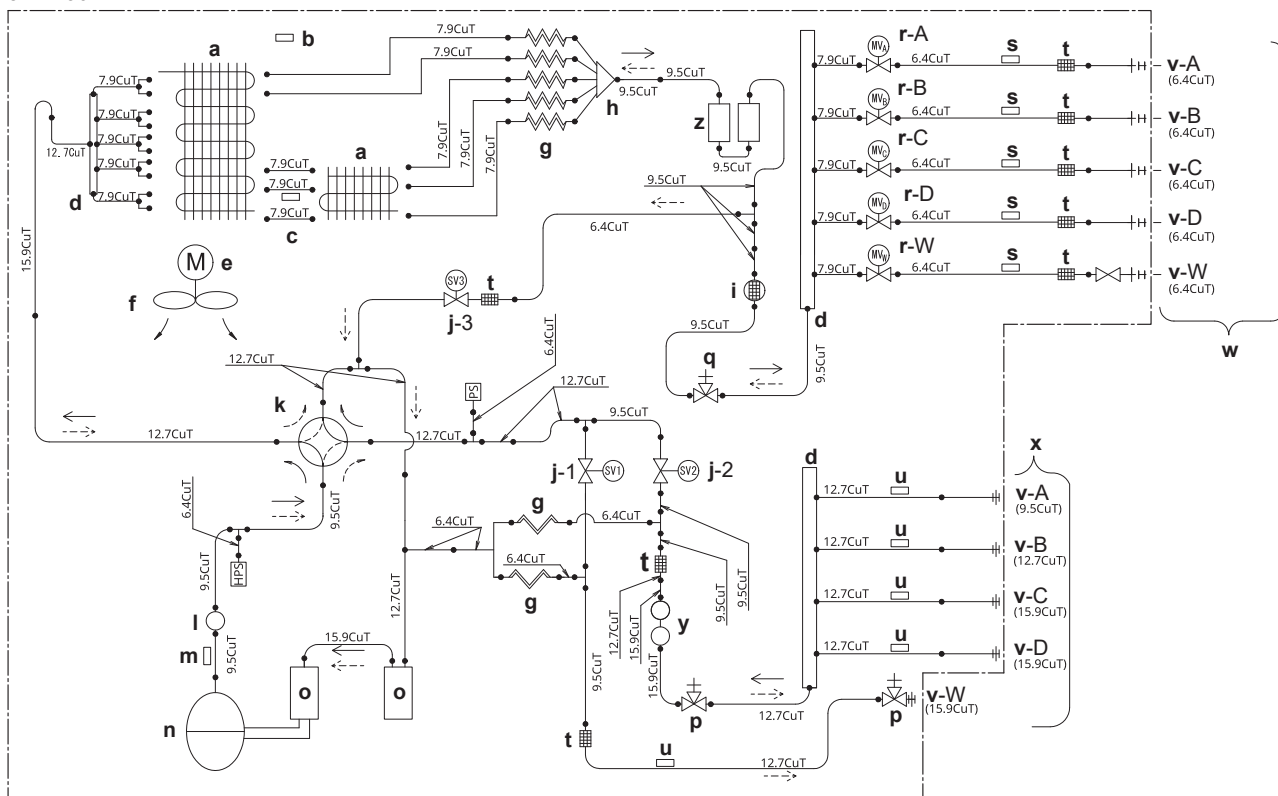
- High pressure switches: category IV
- Compressor: category II
- Accumulator: category II
- Other components: refer to PED article 4, paragraph 3

13 Technical data

5XXM68



5XXM90



- a Heat exchanger
- b Outdoor air temperature thermistor
- c Heat exchanger thermistor
- d Refnet header
- e Fan motor
- f Propeller fan
- g Capillary tube
- h Distributor

- k 4-way valve
- l Muffler
- m Discharge pipe thermistor
- n Compressor
- o Accumulator
- p Gas stop valve
- q Liquid stop valve
- r Electronic expansion valve

- i Muffler with filter

- s Thermistor (liquid)

- u Thermistor (gas)
- v Room (A, B, C, D) and tank unit (W)
- w Field piping – liquid
- x Field piping – gas
- y Twin-branched muffler
- z Liquid receiver
- PS Pressure sensor
- HPS High pressure switch (automatic reset)
- Refrigerant flow: cooling

j Solenoid valve

t Filter

---> Refrigerant flow: DX heating /
tank unit



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