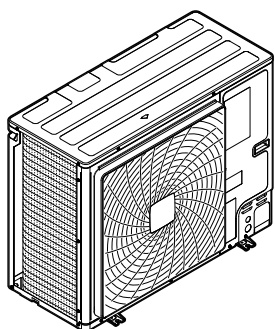




# Installation manual

## Sky Air Alpha-series



RZAG71N7V1B  
RZAG100N7V1B  
RZAG125N7V1B  
RZAG140N7V1B

RZAG71N7Y1B  
RZAG100N7Y1B  
RZAG125N7Y1B  
RZAG140N7Y1B

Installation manual  
Sky Air Alpha-series

English

	A-E	$H_B$ $H_D$ $H_U$	(mm)						
			a	b	c	d	e	$e_B$	$e_D$
	B	—		$\geq 100$					
	A, B, C	—	$\geq 100^{(1)}$	$\geq 100$	$\geq 100$				
	B, E	—		$\geq 100$			$\geq 1000$		$\leq 500$
	A, B, C, E	—	$\geq 150^{(1)}$	$\geq 150$	$\geq 150$		$\geq 1000$		$\leq 500$
	D	—					$\geq 500$		
	D, E	—				$\geq 500$	$\geq 1000$	$\leq 500$	
	B, D	$H_D > H_U$		$\geq 100$		$\geq 500$			
		$H_D \leq H_U$		$\geq 100$		$\geq 500$			
	B, D, E	$H_D > H_U$	$H_B \leq \frac{1}{2} H_U$	$\geq 250$		$\geq 750$	$\geq 1000$	$\leq 500$	
			$\frac{1}{2} H_U < H_B \leq H_U$	$\geq 250$		$\geq 1000$	$\geq 1000$	$\leq 500$	
$H_B > H_U$			⊘						
$H_D \leq H_U$		$H_B \leq \frac{1}{2} H_U$	$\geq 100$		$\geq 1000$	$\geq 1000$		$\leq 500$	
	$\frac{1}{2} H_U < H_B \leq H_U$	$\geq 200$		$\geq 1000$	$\geq 1000$		$\leq 500$		
	$H_B > H_U$	⊘							

1

	A, B, C	—	$\geq 200^{(1)}$	$\geq 300$	$\geq 1000$				
	A, B, C, E	—	$\geq 200^{(1)}$	$\geq 300$	$\geq 1000$		$\geq 1000$		$\leq 500$
	D	—				$\geq 1000$			
	D, E	—				$\geq 1000$	$\geq 1000$	$\leq 500$	
	B, D	$H_D > H_U$		$\geq 300$		$\geq 1000$			
			$H_D \leq H_U$	$H_B \leq \frac{1}{2} H_U$	$\geq 250$		$\geq 1500$		
				$\frac{1}{2} H_U < H_B \leq H_U$	$\geq 300$		$\geq 1500$		
	B, D, E	$H_D > H_U$	$H_B \leq \frac{1}{2} H_U$	$\geq 300$		$\geq 1000$	$\geq 1000$	$\leq 500$	
			$\frac{1}{2} H_U < H_B \leq H_U$	$\geq 300$		$\geq 1250$	$\geq 1000$	$\leq 500$	
			$H_B > H_U$	⊘					
$H_D \leq H_U$		$H_B \leq \frac{1}{2} H_U$	$\geq 250$		$\geq 1500$	$\geq 1000$		$\leq 500$	
	$\frac{1}{2} H_U < H_B \leq H_U$	$\geq 300$		$\geq 1500$	$\geq 1000$		$\leq 500$		
	$H_B > H_U$	⊘							

1+2

	$H_B$ $H_U$	$b$ (mm)
	$H_B \leq \frac{1}{2} H_U$	$b \geq 250$
	$\frac{1}{2} H_U < H_B \leq H_U$	$b \geq 300$
	$H_B > H_U$	⊘

<p><b>A1</b></p>	<p><b>A2</b></p>
<p><b>B1</b></p>	<p><b>B2</b></p>





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## 1 About the documentation

### 1.1 About this document

#### 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 use by lay persons.

#### 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 <http://www.daikineurope.com/support-and-manuals/product-information/>

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

The original documentation is written in English. All other languages are translations.

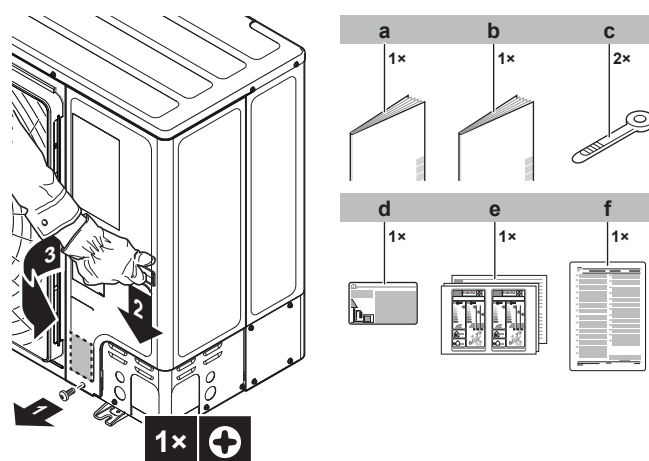
#### Technical engineering data

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

## 2 About the box

### 2.1 Outdoor unit

#### 2.1.1 To remove the accessories from the outdoor unit



- a General safety precautions
- b Outdoor unit installation manual
- c Cable tie
- d Fluorinated greenhouse gases label
- e Energy label
- f Addendum (LOT21)

## Preparation

### 3 Preparation

#### 3.1 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).

##### 3.1.1 Installation site requirements of the outdoor unit

Mind the spacing guidelines. See the "Technical data" chapter, and the figures on the inside of the front cover.

##### INFORMATION

The sound pressure level is less than 70 dBA.

##### CAUTION

Appliance not accessible to the general public, install it in a secured area, protected from easy access.

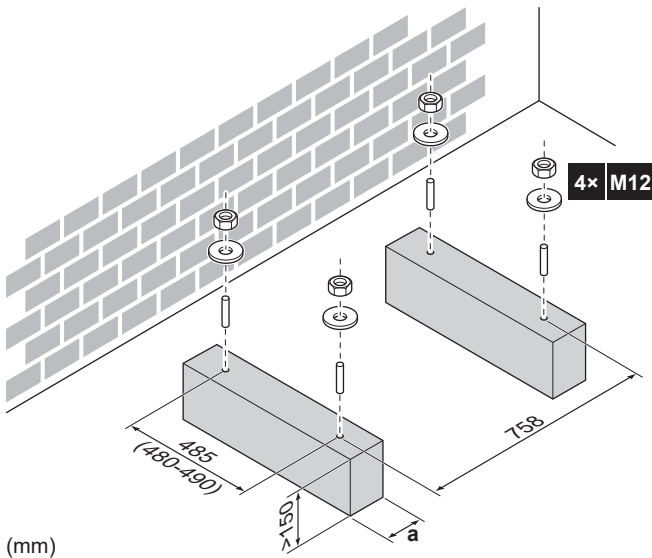
This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment.

## 4 Installation

### 4.1 Mounting the outdoor unit

#### 4.1.1 To provide the installation structure

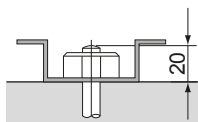
Prepare 4 sets of anchor bolts, nuts and washers (field supply) as follows:



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

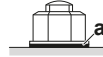
##### INFORMATION

The recommended height of the upper protruding part of the bolts is 20 mm.

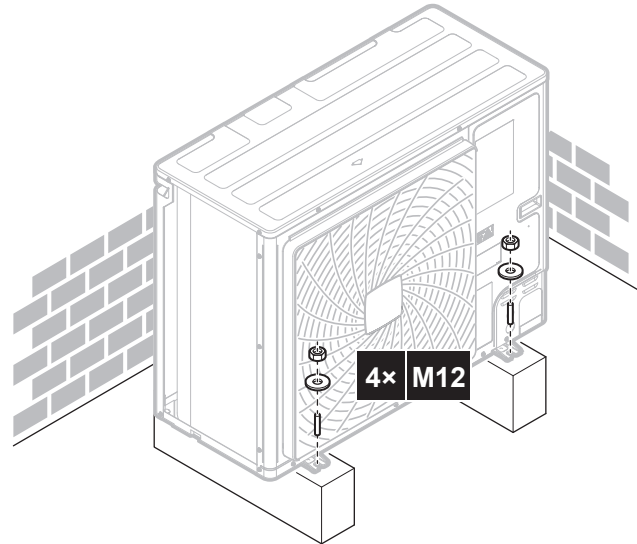


##### NOTICE

Fix the outdoor unit to the foundation bolts using nuts with resin washers (a). If the coating on the fastening area is stripped off, the metal can rust easily.



#### 4.1.2 To install the outdoor unit



#### 4.1.3 To provide drainage

##### INFORMATION

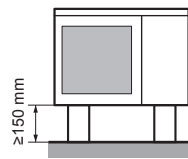
If necessary, you can use a drain pan (field supply) to prevent drain water from dripping.

##### NOTICE

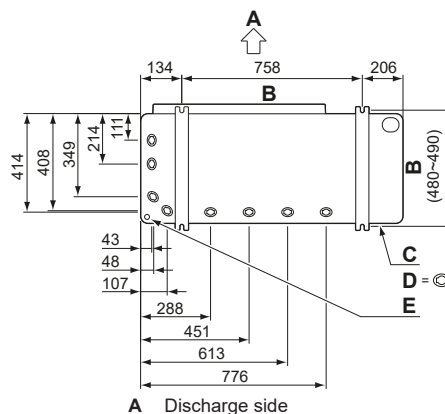
If the unit CANNOT be installed fully level, always make sure that the inclination is towards the backside of the unit. This is required to guarantee proper drainage.

##### NOTICE

If drain holes of the outdoor unit are covered by a mounting base or by floor surface, raise the unit to provide a free space of more than 150 mm under the outdoor unit.



#### Drain holes (dimensions in mm)

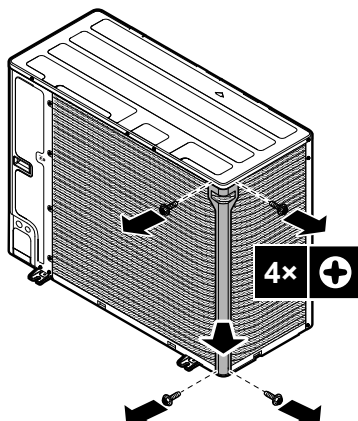


- B Distance between anchor points
- C Bottom frame
- D Drain holes
- E Knockout hole for snow

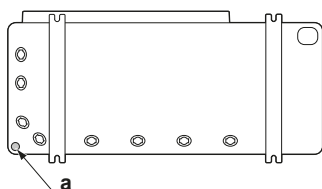
## Snow

In regions with snowfall, snow might build up and freeze between the heat exchanger and the casing of the unit. This might decrease the operating efficiency. To prevent this:

- 1 Remove the beam structure (see figure below).



- 2 Remove the knockout hole (a) by tapping on the attachment points with a flat head screwdriver and a hammer.



- 3 Remove the burrs, and paint the edges and areas around the edges using repair paint to prevent rusting.



### NOTICE

Precautions when making knockout holes:

- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.



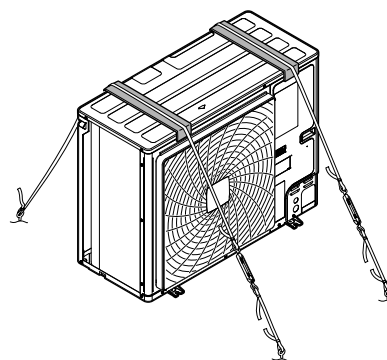
### INFORMATION

We suggest to install the optional bottom plate heater (EKBPH140N7) when the unit is installed in cold climates.

## 4.1.4 To prevent the outdoor unit from falling over

In case the unit is installed in places where strong wind can tilt the unit, take following measure:

- 1 Prepare 2 cables as indicated in the following illustration (field supply).
- 2 Place the 2 cables over the outdoor unit.
- 3 Insert a rubber sheet between the cables and the outdoor unit to prevent the cables from scratching the paint (field supply).
- 4 Attach the ends of the cables and tighten them.



## 4.2 Connecting the refrigerant piping



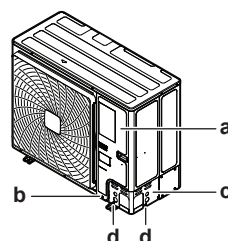
**DANGER: RISK OF BURNING**

### 4.2.1 To connect the refrigerant piping to the outdoor unit

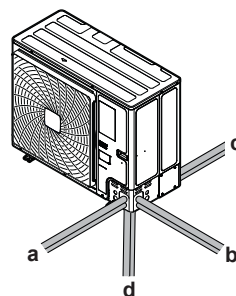
- **Piping length.** Keep field piping as short as possible.
- **Piping protection.** Protect the field piping against physical damage.

- 1 Do the following:

- Remove the service cover (a) with screw (b).
- Remove the piping intake plate (c) with screws (d).



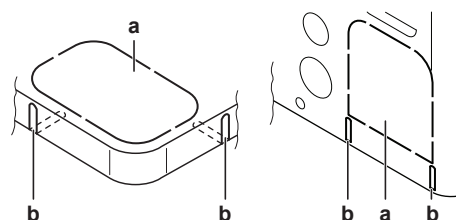
- 2 Choose a piping route (a, b, c or d).



- a Front
- b Side
- c Rear
- d Bottom



### INFORMATION



- Remove the knockout hole (a) in the bottom plate or cover plate by tapping on the attachment points with a flat head screwdriver and a hammer.
- Optionally, cut out the slits (b) with a metal saw.

# Installation

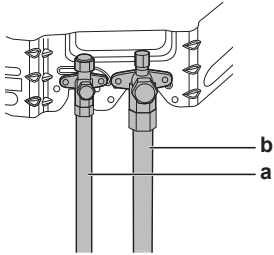
## NOTICE

Precautions when making knockout holes:

- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.

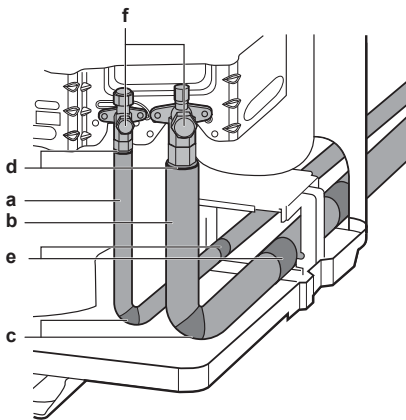
### 3 Do the following:

- Connect the liquid pipe (a) to the liquid stop valve.
- Connect the gas pipe (b) to the gas stop valve.



### 4 Do the following:

- Insulate the liquid piping (a) and the gas piping (b).
- Wind heat insulation around the curves, and then cover it with vinyl tape (c).
- Make sure the field piping does not touch any compressor components.
- Seal the insulation ends (sealant etc.) (d).
- Wrap the field piping with vinyl tape (e) to protect it against sharp edges



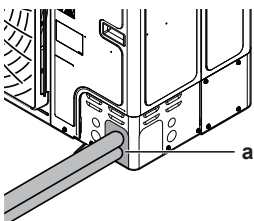
- 5 If the outdoor unit is installed above the indoor unit, cover the stop valves (f, see above) with sealing material to prevent condensed water on the stop valves from moving to the indoor unit.

## NOTICE

Any exposed piping might cause condensation.

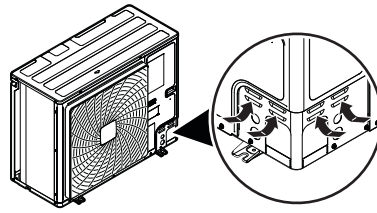
- 6 Reattach the service cover and the piping intake plate.

- 7 Seal all gaps (example: a) to prevent snow and small animals from entering the system.



## NOTICE

Do not block the air vents. This could affect air circulation inside the unit.



## WARNING

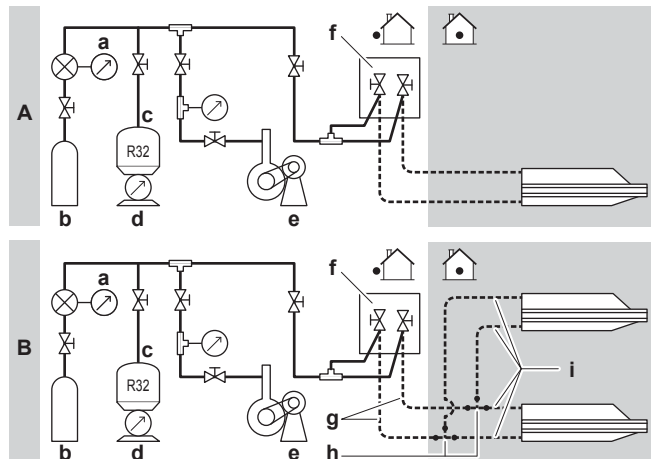
Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

## 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.

## 4.3 Checking the refrigerant piping

### 4.3.1 Checking refrigerant piping: Setup



- A Setup in case of pair
- B Setup in case of twin
- a Pressure gauge
- b Nitrogen
- c Refrigerant
- d Weighing scale
- e Vacuum pump
- f Stop valve
- g Main piping
- h Refrigerant branch kit
- i Branch piping

### 4.3.2 To check for leaks

## NOTICE

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





**NOTICE**

Make sure to use a recommended bubble test solution from your wholesaler. Do not use soap water, which may cause cracking of flare nuts (soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold), and/or lead to corrosion of flared joints (soap water may contain ammonia which causes a corrosive effect 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) in order to detect small leaks.
- 2 Check for leaks by applying the bubble test solution to all connections.
- 3 Discharge all nitrogen gas.

**4.3.3 To perform vacuum drying**



**NOTICE**

- Connect the vacuum pump to **both** the service port of the gas stop valve and the service port of the liquid stop valve to increase efficiency.
- Make sure that the gas stop valve and liquid stop valve are firmly closed before performing the leak test or vacuum drying.

- 1 Vacuum the system until the pressure on the manifold indicates -0.1 MPa (-1 bar).
- 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 2 hours to a manifold pressure of -0.1 MPa (-1 bar).
- 4 After turning the pump OFF, check the pressure for at least 1 hour.
- 5 If you do NOT reach the target vacuum or CANNOT maintain the vacuum for 1 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.

**4.4 Charging refrigerant**

**4.4.1 About charging refrigerant**

The outdoor unit is factory charged with refrigerant, but in some cases the following might be necessary:

What	When
Charging additional refrigerant	When the total liquid piping length is more than specified (see later).
Completely recharging refrigerant	<b>Example:</b> <ul style="list-style-type: none"> <li>▪ When relocating the system.</li> <li>▪ After a leak.</li> </ul>

**Charging additional refrigerant**

Before charging additional refrigerant, make sure the outdoor unit's **external** refrigerant piping is checked (leak test, vacuum drying).



**INFORMATION**

Depending on the units and/or the installation conditions, it might be necessary to connect electrical wiring before you can charge refrigerant.

Typical workflow – Charging additional refrigerant typically consists of the following stages:

- 1 Determining if and how much you have to charge additionally.
- 2 If necessary, charging additional refrigerant.
- 3 Filling in the fluorinated greenhouse gases label, and fixing it to the inside of the outdoor unit.

**Completely recharging refrigerant**

Before completely recharging refrigerant, make sure the following is done:

- 1 All refrigerant is recovered from the system.
- 2 The outdoor unit's **external** refrigerant piping is checked (leak test, vacuum drying).
- 3 Vacuum drying on the outdoor unit's **internal** refrigerant piping is performed.



**NOTICE**

Before completely recharging, perform vacuum drying on the outdoor unit's **internal** refrigerant piping as well.



**NOTICE**

To perform vacuum drying or a complete recharge of the outdoor unit's internal refrigerant piping it is necessary to activate the vacuum mode (see ["To activate/deactivate the vacuum mode field setting" on page 12](#)) which will open required valves in the refrigerant circuit so the vacuuming process or recharge of refrigerant can be done properly.

- Before vacuum drying or recharging, activate field setting "vacuum mode".
- After finishing vacuum drying or recharging, deactivate field setting "vacuum mode".



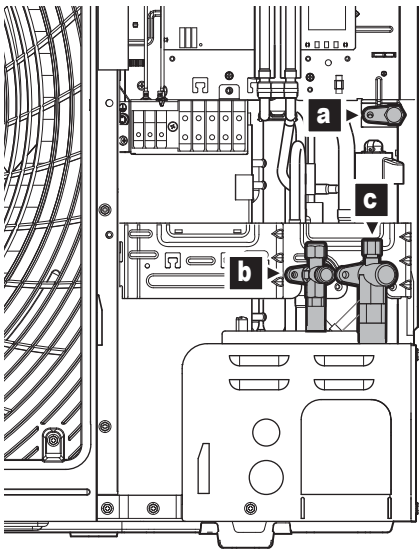
**WARNING**

Some sections of the refrigerant circuit may be isolated from other sections caused by components with specific functions (e.g. valves). The refrigerant circuit therefore features additional service ports for vacuuming, pressure relief or pressurizing the circuit.

In case it is required to perform **brazing** on the unit, ensure that there is no pressure remaining inside the unit. Internal pressures need to be released with ALL the service ports indicated on the figures below opened. The location is depending on model type.

Location of service ports:

# Installation



- a Internal service port
- b Stop valve with service port (liquid)
- c Stop valve with service port (gas)

Typical workflow – Completely recharging refrigerant typically consists of the following stages:

- 1 Determining how much refrigerant to charge.
- 2 Charging refrigerant.
- 3 Filling in the fluorinated greenhouse gases label, and fixing it to the inside of the outdoor unit.

## 4.4.2 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



### WARNING: FLAMMABLE MATERIAL

The refrigerant inside this unit is mildly flammable.



### 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

- 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

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.

## 4.4.3 Precautions when charging refrigerant

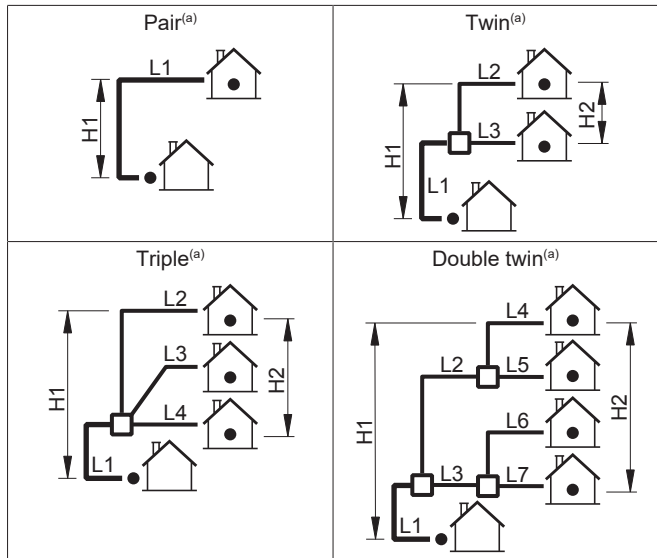


### INFORMATION

Also read the precautions and requirements in the following chapters:

- General safety precautions
- Preparation

## 4.4.4 Definitions: L1~L7, H1, H2



(a) Assume that the longest line in the illustration corresponds with the actual longest pipe, and the highest unit in the illustration corresponds with the actual highest unit.

- L1 Main piping
- L2~L7 Branch piping
- H1 Height difference between the highest indoor unit and the outdoor unit
- H2 Height difference between the highest and the lowest indoor unit
- Refrigerant branch kit

## 4.4.5 Charging additional refrigerant

### To determine the additional refrigerant amount

#### To determine if adding additional refrigerant is necessary

If	Then
$(L1+L2+L3+L4+L5+L6+L7) \leq$ chargeless length Chargeless length= <ul style="list-style-type: none"> <li>▪ 10 m (size-down)</li> <li>▪ 40 m (standard)</li> <li>▪ 15 m (size-up)</li> </ul>	You do not have to add additional refrigerant.
$(L1+L2+L3+L4+L5+L6+L7) >$ chargeless length	You must add additional refrigerant.  For future servicing, encircle the selected amount in the tables below.



### INFORMATION

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

To determine the additional refrigerant amount (R in kg) (in case of pair)

Standard piping size						
L1:	40~50 m	50~55 m	55~60 m	60~70 m	70~80 m	80~85 m
R:	0.35 kg	0.7 kg <sup>(a)</sup> 0.55 kg <sup>(b)</sup>	0.7 kg <sup>(a)</sup>	1.05 kg <sup>(a)</sup>	1.4 kg <sup>(a)</sup>	1.55 kg <sup>(a)</sup>

(a) Only for RZAG100~140.  
(b) Only for RZAG71.

Size-up piping size				
L1:	15~20 m	20~25 m	25~30 m	30~35 m
R:	0.35 kg	0.7 kg	1.05 kg <sup>(a)</sup>	1.4 kg <sup>(a)</sup>

(a) Only for RZAG100~140.

To determine the additional refrigerant amount (R in kg) (in case of twin, triple and double twin)

1 Determine G1 and G2.

G1 (m)	Total length of <x> liquid piping x=Ø9.5 mm (standard) x=Ø12.7 mm (size-up)
G2 (m)	Total length of Ø6.4 mm liquid piping

2 Determine R1 and R2.

If	Then
G1>40 m <sup>(a)</sup>	Use the table below to determine R1 (length=G1-40 m) <sup>(a)</sup> and R2 (length=G2).
G1≤40 m <sup>(a)</sup> (and G1+G2>40 m) <sup>(a)</sup>	R1=0.0 kg. Use the table below to determine R2 (length=G1+G2-40 m) <sup>(a)</sup> .

(a) In case of size-up: Replace 40 m by 15 m.

	Length					
	0~10 m	10~15 m	15~20 m	20~30 m	30~40 m	40~45 m
R1:	0.35 kg	0.7 kg <sup>(a)</sup> 0.55 kg <sup>(b)</sup>	0.7 kg <sup>(a)</sup>	1.05 kg <sup>(a)</sup>	1.4 kg <sup>(a)</sup>	1.55 kg <sup>(a)</sup>
R2:	0.2 kg	0.4 kg	0.4 kg	0.6 kg	0.8 kg <sup>(a)</sup>	1 kg <sup>(a)</sup>

(a) Only for RZAG100~140.  
(b) Only for RZAG71.

	Length						
	0~5 m	5~10 m	10~15 m	15~20 m	20~30 m	30~40 m	40~45 m
R1:	0.35 kg	0.7 kg	1.05 kg <sup>(a)</sup>	1.4 kg <sup>(a)</sup>	—	—	—
R2:	0.35 kg	—	0.7 kg <sup>(a)</sup>	1.05 kg <sup>(a)</sup>	1.4 kg <sup>(a)</sup>	—	—

(a) Only for RZAG100~140.

3 Determine the additional refrigerant amount: R=R1+R2.

Examples

Layout	Additional refrigerant amount (R)
	Case: Twin, standard liquid pipe size
	1 G1 Total Ø9.5 => G1=45 m G2 Total Ø6.4 => G2=7+5=12 m
	2 Case: G1>40 m R1 Length=G1-40 m=5 m => R1=0.35 kg R2 Length=G2=12 m => R2=0.4 kg 3 R R=R1+R2=0.35+0.4=0.75 kg
	Case: Triple, standard liquid pipe size
	1 G1 Total Ø9.5 => G1=15 m G2 Total Ø6.4 => G2=20+17+17=54 m
	2 Case: G1≤40 m (and G1+G2>40 m) R1 R1=0.0 kg R2 Length=G1+G2-40 m=15+54-40=29 m => R2=0.6 kg 3 R R=R1+R2=0.0+0.6=0.6 kg

Charging refrigerant: Setup

See "4.3.1 Checking refrigerant piping: Setup" on page 8.

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).

- Connect the refrigerant cylinder to both the service port of the gas stop valve and the service port of the liquid stop valve.
- Charge the additional refrigerant amount.
- Open the stop valves.

4.4.6 Completely recharging refrigerant

To determine the complete recharge amount

To determine the complete recharge amount (kg) (in case of standard liquid pipe size)

Model	Length (m) <sup>(a)</sup>						
	3~40	40~50	50~55	55~60	60~70	70~80	80~85
RZAG71	3.2	3.55	3.75	—	—	—	—
RZAG100	3.2	3.55	3.9	4.25	4.6	4.75	—
RZAG125-140	3.7	4.05	4.4	4.75	5.1	5.25	—

(a) Length=L1 (pair); L1+L2 (twin, triple); L1+L2+L4 (double twin)

To determine the complete recharge amount (kg) (in case of size-up liquid pipe size)

Model	Length (m) <sup>(a)</sup>				
	3~15	15~20	20~25	25~30	30~35
RZAG71	3.2	3.55	3.9	—	—

## Installation

Model	Length (m) <sup>(a)</sup>				
	3~15	15~20	20~25	25~30	30~35
RZAG100	3.2	3.55	3.9	4.25	4.6
RZAG125+140	3.7	4.05	4.4	4.75	5.1

(a) Length=L1 (pair); L1+L2 (twin, triple); L1+L2+L4 (double twin)

To determine the complete recharge amount (kg) (in case of size-down liquid pipe size)

Model	Length (m) <sup>(a)</sup>
	3~10
RZAG71+100	3.2
RZAG125+140	3.7

(a) Length=L1 (pair); L1+L2 (twin, triple); L1+L2+L4 (double twin)

### To activate/deactivate the vacuum mode field setting

#### Description

To perform vacuum drying or a complete recharge of the outdoor unit's internal refrigerant piping it is necessary to activate the vacuum mode which will open required valves in the refrigerant circuit so the vacuuming process or recharge of refrigerant can be done properly.

#### To activate vacuum mode:

Activating the vacuum mode is done by operating the push buttons BS\* on the PCB (A1P) and reading the feedback from the 7-segment displays.

Operate the switches and push buttons with an insulated stick (such as a closed ball-point pen) to avoid touching of live parts.



- When the unit is powered on and not running, hold down the BS1 pushbutton for 5 seconds.

**Result:** You will reach the setting mode, the 7 segment display will show '2 0 0'.

- Press the BS2 button until you reach page **2-17**.
- When **2-17** is reached, press the BS3 button once.
- Change the setting to '2' by pressing the BS2 button once.
- Push the BS3 button once.
- When the display is not blinking anymore, press the BS3 button again to activate vacuum mode.

#### To deactivate vacuum mode:

After charging or vacuuming the unit, please deactivate the vacuum mode:

- Press the BS2 button until you reach page **2-17**.
- When **2-17** is reached, press the BS3 button once.
- Change the setting to '1' by pressing the BS2 button once.
- Push the BS3 button once.
- When the display is not blinking anymore, press the BS3 button again to deactivate vacuum mode.
- Press the BS1 button to leave the setting mode.

Make sure to reattach the electronic component box cover and to install the front cover after the job is finished.



#### NOTICE

Make sure that all outside panels, except for the service cover on the electrical component box, are closed while working.

Close the lid of the electrical component box firmly before turning on the power.

### Charging refrigerant: Setup

See "4.3.1 Checking refrigerant piping: Setup" on page 8.

### To completely recharge refrigerant



#### WARNING

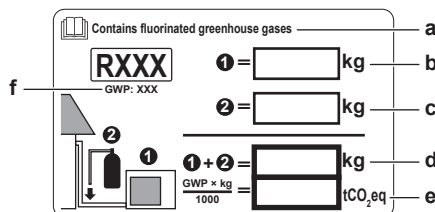
- Only use R32 as refrigerant. Other substances may cause explosions and accidents.
- R32 contains fluorinated greenhouse gases. Its global warming potential (GWP) value is 675. Do NOT vent these gases into the atmosphere.
- When charging refrigerant, ALWAYS use protective gloves and safety glasses.

**Prerequisite:** Before completely recharging refrigerant, make sure the system is pumped down, the outdoor unit's **external** refrigerant piping is checked (leak test, vacuum drying) and vacuum drying on the outdoor unit's **internal** refrigerant piping is performed.

- If not already done (for vacuum drying of the unit), activate the vacuum mode (see "To activate/deactivate the vacuum mode field setting" on page 12)
- Connect the refrigerant cylinder to the service port of the liquid stop valve.
- Open the liquid stop valve.
- Charge the complete refrigerant amount.
- Deactivate the vacuum mode (see "To activate/deactivate the vacuum mode field setting" on page 12).
- Open the gas stop valve.

### 4.4.7 To fix the fluorinated greenhouse gases label

- 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 CO<sub>2</sub> 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 CO<sub>2</sub> equivalent.

**Formula to calculate the quantity in CO<sub>2</sub> equivalent tonnes:** GWP value of the refrigerant × total refrigerant charge [in kg] / 1000

Use the GWP value mentioned on the refrigerant charge label. That GWP is based on the current legislation on fluorinated greenhouse gases. The GWP mentioned in the manual might be outdated.

- Fix the label on the inside of the outdoor unit. There is a dedicated place for it on the wiring diagram label.

## 4.5 Connecting the electrical wiring



**DANGER: RISK OF ELECTROCUTION**



**WARNING**

ALWAYS use multicore cable for power supply cables.



**CAUTION**

For use of units in applications with temperature alarm settings it is recommended to foresee a delay of 10 minutes for signalling the alarm in case the alarm temperature is exceeded. The unit may stop for several minutes during normal operation for "defrosting the unit", or when in "thermostat stop" operation.

### 4.5.1 About electrical compliance

#### RZAG71~140N7V1B

Equipment complying with EN/IEC 61000-3-12 (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.).

### 4.5.2 Guidelines when connecting the electrical wiring

#### Tightening torques

Item	Tightening torque (N•m)
M4 (X1M)	1.2~1.8
M4 (earth)	1.2~1.4
M5 (X1M)	2.0~3.0
M5 (earth)	2.4~2.9



**NOTICE**

If limited space is available at the wire terminal, use bended crimp-style ring terminals.

### 4.5.3 Specifications of standard wiring components

Component		V1			Y1			
		71	100	125~140	71	100	125	140
Power supply cable	MCA <sup>(a)</sup>	18.8 A	23.3 A	28.8 A	12.3 A	15.4 A	15.7 A	15.4 A
	Voltage range	220~240 V			380~415 V			
	Phase	1~			3N~			
	Frequency	50 Hz						
	Wire sizes	Must comply with applicable legislation						
Interconnection cables		Minimum cable section of 2.5 mm <sup>2</sup> and applicable for 230 V						
Recommended field fuse		20 A	32 A		16 A			
Earth leakage circuit breaker		Must comply with applicable legislation						

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

### 4.5.4 To connect the electrical wiring on the outdoor unit

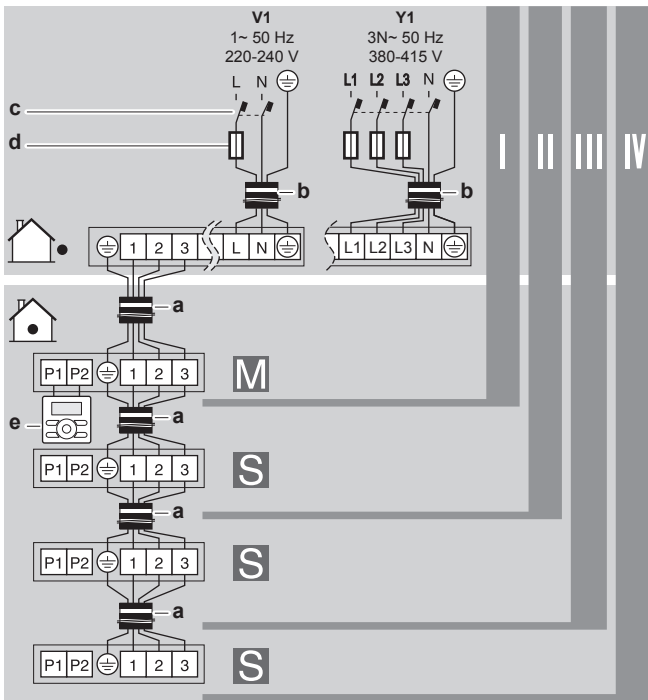


**NOTICE**

- Follow the wiring diagram (delivered with the unit, located at the inside of the service cover).
- Make sure the electrical wiring does NOT obstruct proper reattachment of the service cover.

- Remove the service cover.
- Connect the interconnection cables and power supply as follows:

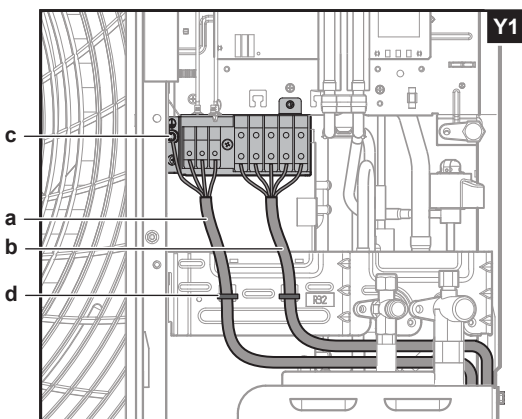
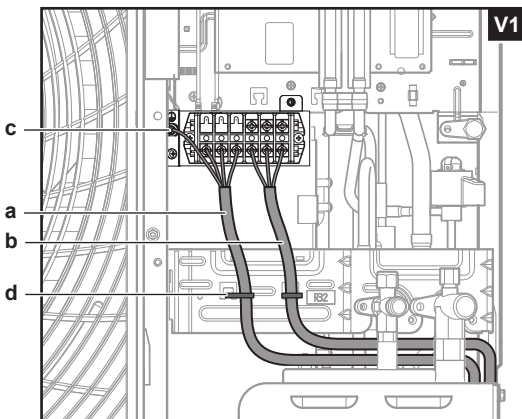
# Installation



- I, II, III, IV Pair, twin, triple, double twin
- M, S Master, slave
- a Interconnection cables
- b Power supply cable
- c Earth leakage circuit breaker
- d Fuse
- e User interface

## **i** INFORMATION

Some indoor units may need a separate power supply in order to guarantee maximum capacity. See the installation manual of the indoor unit.



- a Interconnection cable
- b Power supply cable
- c Earth

## d Cable tie

- 3 Fix the cables (power supply and interconnection cable) with a cable tie to the stop valve attachment plate and route the wiring according to the illustration above.
- 4 Choose a knockout hole and remove the knockout hole by tapping on the attachment points with a flat head screwdriver and a hammer.
- 5 Route the wiring through the frame and connect the wiring to the frame at the knockout hole.

<p>Routing through the frame</p>	<p>Choose one of the 3 possibilities:</p> <p>a Power supply cable</p> <p><b>Note:</b> Route the interconnection cable together with the refrigerant piping. See "4.6.1 To finish the outdoor unit installation" on page 15.</p>
<p>Connecting to the frame</p>	<p>When cables are routed from the unit, a protection sleeve for the conduits (PG insertions) can be inserted at the knockout hole.</p> <p>When you do not use a wire conduit, protect the wires with vinyl tubes to prevent the edge of the knockout hole from cutting the wires.</p> <p>A Inside of the outdoor unit B Outside of the outdoor unit</p> <p>a Wire b Bush c Nut d Frame e Hose</p>

## **!** NOTICE

Precautions when making knockout holes:

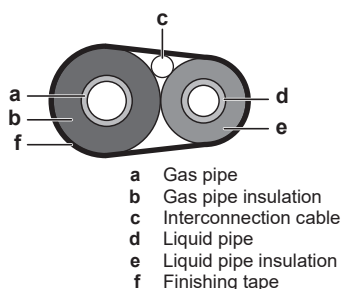
- Avoid damaging the casing and underlying piping.
- After making the knockout holes, we recommend to remove the burrs and paint the edges and areas around the edges using repair paint to prevent rusting.
- When passing electrical wiring through the knockout holes, wrap the wiring with protective tape to prevent damage.

- 6 Reattach the service cover.
- 7 Connect an earth leakage circuit breaker and fuse to the power supply line.

## 4.6 Finishing the outdoor unit installation

### 4.6.1 To finish the outdoor unit installation

- 1 Insulate and fix the refrigerant piping and interconnection cable as follows:



- 2 Install the service cover.

### 4.6.2 To check the insulation resistance of the compressor



#### NOTICE

If, after installation, refrigerant accumulates in the compressor, the insulation resistance over the poles can drop, but if it is at least 1 MΩ, then the unit will not break down.

- Use a 500 V mega-tester when measuring insulation.
- Do not use a mega-tester for low-voltage circuits.

- 1 Measure the insulation resistance over the poles.

If	Then
≥1 MΩ	Insulation resistance is OK. This procedure is finished.
<1 MΩ	Insulation resistance is not OK. Go to the next step.

- 2 Turn ON the power and leave it on for 6 hours.

**Result:** The compressor will heat up and evaporate any refrigerant in the compressor.

- 3 Measure the insulation resistance again.

## 5 Commissioning

Please provide the eco design data according to (EU)2016/2281 to the customer. This data can be found in the installer reference guide or via the Daikin website.



#### NOTICE

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

### 5.1 Checklist before commissioning

After the installation of the unit, first check the items listed below. Once all checks are fulfilled, the unit must be closed. Power-up the unit after it is closed.

<input type="checkbox"/>	You read the complete installation instructions, as described in the <b>installer reference guide</b> .
<input type="checkbox"/>	The <b>indoor units</b> are properly mounted.
<input type="checkbox"/>	In case a wireless user interface is used: The <b>indoor unit decoration panel</b> with infrared receiver is installed.

<input type="checkbox"/>	The <b>outdoor unit</b> is properly mounted.
<input type="checkbox"/>	The following <b>field wiring</b> has been carried out according to this document and the applicable legislation: <ul style="list-style-type: none"> <li>• Between the local supply panel and the outdoor unit</li> <li>• Between the outdoor unit and the indoor unit (master)</li> <li>• Between the indoor units</li> </ul>
<input type="checkbox"/>	There are <b>NO missing phases</b> or <b>reversed phases</b> .
<input type="checkbox"/>	The system is properly <b>earthed</b> and the earth terminals are tightened.
<input type="checkbox"/>	The <b>fuses</b> or locally installed protection devices are installed according to this document, and have <b>NOT</b> been bypassed.
<input type="checkbox"/>	The <b>power supply voltage</b> matches the voltage on the identification label of the unit.
<input type="checkbox"/>	There are <b>NO loose connections</b> or damaged electrical components in the switch box.
<input type="checkbox"/>	The <b>insulation resistance</b> of the compressor is OK.
<input type="checkbox"/>	There are <b>NO damaged components</b> or <b>squeezed pipes</b> on the inside of the indoor and outdoor units.
<input type="checkbox"/>	There are <b>NO refrigerant leaks</b> .
<input type="checkbox"/>	The correct pipe size is installed and the <b>pipes</b> are properly insulated.
<input type="checkbox"/>	The <b>stop valves</b> (gas and liquid) on the outdoor unit are fully open.

### 5.2 To perform a test run

This task is only applicable when using the BRC1E52 or BRC1E53 user interface. When using any other user interface, see the installation manual or service manual of the user interface.



#### NOTICE

Do not interrupt the test run.



#### INFORMATION

**Backlight.** To perform an ON/OFF action on the user interface, the backlight does not need to be lit. For any other action, it needs to be lit first. The backlight is lit for ±30 seconds when you press a button.

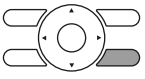
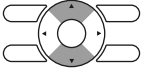
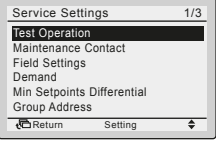
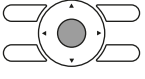
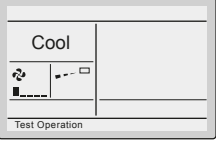
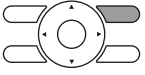
- 1 Perform introductory steps.

#	Action
1	Open the liquid stop valve and gas stop valve by removing the cap and turning counterclockwise with a hex wrench until it stops.
2	Close the service cover to prevent electric shocks.
3	Turn ON power for at least 6 hours before starting operation to protect the compressor.
4	On the user interface, set the unit to cooling operation mode.

- 2 Start the test run

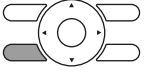
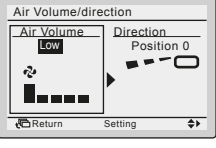
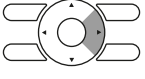
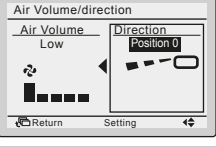
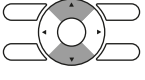
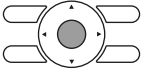
#	Action	Result
1	Go to the home menu.	

## Disposal

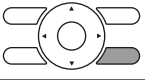
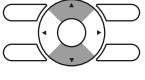
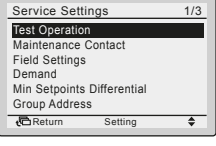
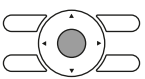
#	Action	Result
2	Press at least 4 seconds. 	The Service Settings menu is displayed.
3	Select Test Operation. 	
4	Press. 	Test Operation is displayed on the home menu. 
5	Press within 10 seconds. 	Test run starts.

3 Check operation for 3 minutes.

4 Check operation of the airflow direction (only applicable for indoor units with swing flaps).

#	Action	Result
1	Press. 	
2	Select Position 0. 	
3	Change the position. 	If the airflow flap of the indoor unit moves, operation is OK. If not, operation is not OK.
4	Press. 	The home menu is displayed.

5 Stop the test run.

#	Action	Result
1	Press at least 4 seconds. 	The Service Settings menu is displayed.
2	Select Test Operation. 	
3	Press. 	The unit returns to normal operation, and the home menu is displayed.

## 5.3 Error codes when performing a test run

If the installation of the outdoor unit has NOT been done correctly, the following error codes may be displayed on the user interface:

Error code	Possible cause
Nothing displayed (the currently set temperature is not displayed)	<ul style="list-style-type: none"> <li>The wiring is disconnected or there is a wiring error (between power supply and outdoor unit, between outdoor unit and indoor units, between indoor unit and user interface).</li> <li>The fuse on the outdoor unit PCB has blown out.</li> </ul>
E3, E4 or L8	<ul style="list-style-type: none"> <li>The stop valves are closed.</li> <li>The air inlet or air outlet is blocked.</li> </ul>
U1 or E7	<p>There is a missing phase in case of three-phase power supply units.</p> <p><b>Note:</b> Operation will be impossible. Turn OFF the power, recheck the wiring, and switch two of the three electrical wires.</p>
L4	The air inlet or air outlet is blocked.
U0	The stop valves are closed.
U2	<ul style="list-style-type: none"> <li>There is a voltage imbalance.</li> <li>There is a missing phase in case of three-phase power supply units. <b>Note:</b> Operation will be impossible. Turn OFF the power, recheck the wiring, and switch two of the three electrical wires.</li> </ul>
U4 or UF	The inter-unit branch wiring is not correct.
UA	The outdoor and indoor unit are incompatible.

## 6 Disposal

This unit uses hydrofluorocarbon. Contact your dealer when discarding this unit.



### 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.



## 7 Technical data

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

### 7.1 Service space: Outdoor unit

<b>Suction side</b>	In the illustrations below, the service space at the suction side is based on 35°C DB and cooling operation. Foresee more space in the following cases: <ul style="list-style-type: none"> <li>▪ When the suction side temperature regularly exceeds this temperature.</li> <li>▪ When the heat load of the outdoor units is expected to regularly exceed the maximum operating capacity.</li> </ul>
<b>Discharge side</b>	Take refrigerant piping work into account when positioning the units. If your layout does not match with any of the layouts below, contact your dealer.

Single unit (□) | Single row of units (←→)

Multiple rows of units (↙↘)

Stacked units (max. 2 levels) (↑↓)

See figure 1 on the inside of the front cover.

- (1) For better serviceability, use a distance  $\geq 250$  mm
- A,B,C,D** Obstacles (walls/baffle plates)
- E** Obstacle (roof)
- a,b,c,d,e** Minimum service space between the unit and obstacles A, B, C, D and E
- e<sub>B</sub>** Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle B
- e<sub>D</sub>** Maximum distance between the unit and the edge of obstacle E, in the direction of obstacle D
- H<sub>U</sub>** Height of the unit
- H<sub>B</sub>,H<sub>D</sub>** Height of obstacles B and D
- 1** Seal the bottom of the installation frame to prevent discharged air from flowing back to the suction side through the bottom of the unit.
- 2** Maximum two units can be installed.
- ⊘ Not allowed

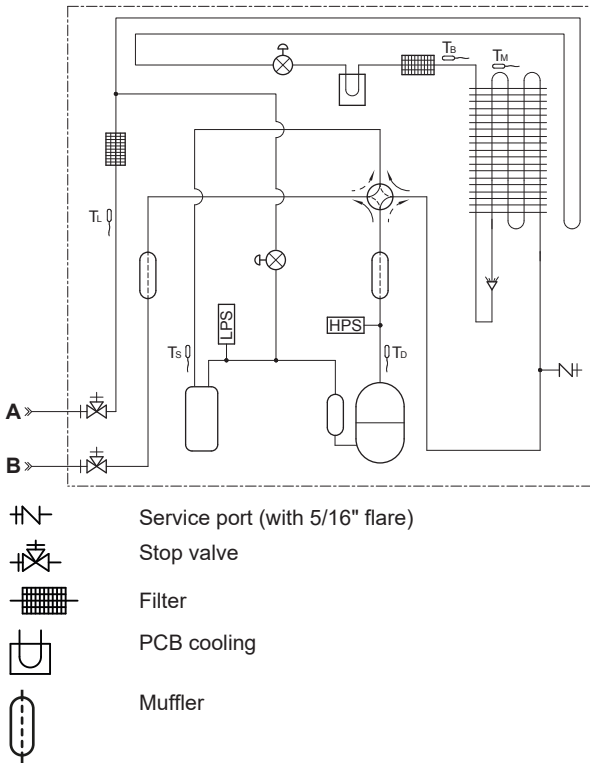
See figure 2 on the inside of the front cover.

- (1) For better serviceability, use a distance  $\geq 250$  mm

See figure 3 on the inside of the front cover.

- (1) For better serviceability, use a distance  $\geq 250$  mm
- A1=>A2** (A1) If there is danger of drainage dripping and freezing between the upper and lower units...  
(A2) Then install a **roof** between the upper and lower units. Install the upper unit high enough above the lower unit to prevent ice buildup at the upper unit's bottom plate.
- B1=>B2** (B1) If there is no danger of drainage dripping and freezing between the upper and lower units...  
(B2) Then it is not required to install a roof, but **seal the gap** between the upper and lower units to prevent discharged air from flowing back to the suction side through the bottom of the unit.

## 7.2 Piping diagram: Outdoor unit



- Electronic expansion valve
- 4-way valve
- High pressure switch
- Low pressure switch
- Compressor accumulator
- Heat exchanger
- Compressor
- Distributor
- Accumulator
- Thermistor
- A** Field piping (liquid: Ø9.5 flare connection)
- B** Field piping (gas: Ø15.9 flare connection)
- Heating
- Cooling

## 7.3 Wiring diagram: Outdoor unit

The wiring diagram is delivered with the unit, located at the inside of the service cover.

### (1) Connection diagram

English	Translation
Connection diagram	Connection diagram
Only for ***	Only for ***
See note ***	See note ***
Outdoor	Outdoor
Indoor	Indoor
Upper	Upper
Lower	Lower
Fan	Fan
ON	ON
OFF	OFF

### (2) Layout

English	Translation
Layout	Layout
Front	Front
Back	Back
Position of compressor terminal	Position of compressor terminal

### (3) Notes

English	Translation
Notes	Notes
	Connection
X1M	Indoor/outdoor communication
---	Earth wiring
----	Field supply
①	Several wiring possibilities

English	Translation
	Protective earth
	Field wire
	Wiring depending on model
	Option
	Switch box
	PCB

### NOTES:

- 1 Refer to the wiring diagram sticker (on the back of the front plate) for how to use the BS1~BS3 and DS1 switches.
- 2 When operating, do not short-circuit protective devices S1PH, S1PL and Q1E.
- 3 Refer to the combination table and the option manual for how to connect the wiring to X6A, X28A and X77A.
- 4 Colours: BLK: black, RED: red, BLU: blue, WHT: white, GRN: green

### (4) Legend

English	Translation
Legend	Legend
Field supply	Field supply
Optional	Optional
Part n°	Part n°
Description	Description

- A1P Printed circuit board (main)
- A2P Printed circuit board (noise filter)
- A3P \* Printed circuit board (demand)
- BS1~BS3 (A1P) Push button switch

C1~C5 (A1P) (Y1 only)	Capacitor
DS1 (A1P)	Dipswitch
E1~3 (A1P)	Connector
E1H	* Bottom plate heater (option)
F*U	* Fuse
HAP (A1P)	Light-emitting diode (service monitor is green)
K1M, K3M (A1P) (Y1 only)	Magnetic contactor
K1R (A1P)	Magnetic relay (Y1S)
K4R (A1P)	Magnetic relay (E1H)
K10R, K13R~K15R (A1P)	Magnetic relay
K11M (A1P) (V1 only)	Magnetic contactor
L1R (Y1 only)	Reactor
M1C	Compressor motor
M1F	Fan motor
PFC (A1P) (V1 only)	Power factor correction
PS (A1P)	Switching power supply
Q1DI	Earth leakage circuit breaker (30 mA)
Q1E	Overload protection
R1~R8 (A1P) (Y1 only)	Resistor
R1T	Thermistor (air)
R2T	Thermistor (discharge)
R3T	Thermistor (suction)
R4T	Thermistor (heat exchanger)
R5T	Thermistor (heat exchanger middle)
R6T	Thermistor (liquid)
R7T	Thermistor (fin)
R8 (A1P) (V1 only)	Resistor
RC (A1P) (Y1 only)	Signal receiver unit
S1PH	High pressure switch
S1PL	Low pressure switch
SEG1~SEG3	7-segment display
TC1 (A1P) (V1 only)	Signal transmission circuit
TC (A1P) (Y1 only)	Signal transmission circuit
V1 (A2P)	Varistor
V1D (A1P) (V1 only)	Diode
V1D, V2D (A1P) (Y1 only)	Diode
V*R (A1P) (V1 only)	Diode module
V1R, V2R (A1P) (Y1 only)	Diode module
V3R, V4R (A1P) (Y1 only)	IGBT power module
X1M	Terminal strip
Y1E~Y3E	Electronic expansion valve
Y1S	Solenoid valve (4-way valve)
Z*C	Noise filter (ferrite core)
Z*F	Noise filter
L*, L*A, L*B, N, NA, NB, E*, U, V, W, X*A (A1P~A2P)	Connector

**ERC**



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