

AKAI

PROTECT YOUR WARRANTY
This unit must be installed by a registered,
licensed installer as required by
Government regulations.



Reverse Cycle Inverter Air Conditioner

INSTALLATION MANUAL

Model Number
TAK-9000-25
TAK-12000-32
TAK-18000-50
TAK-24000-70

After Sales Support

☎ 1300 886 649 (AUS) 0800 836 761 (NZ) | 📧 info@tempo.org



N13275

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General Safety Instructions

PROTECT YOUR WARRANTY

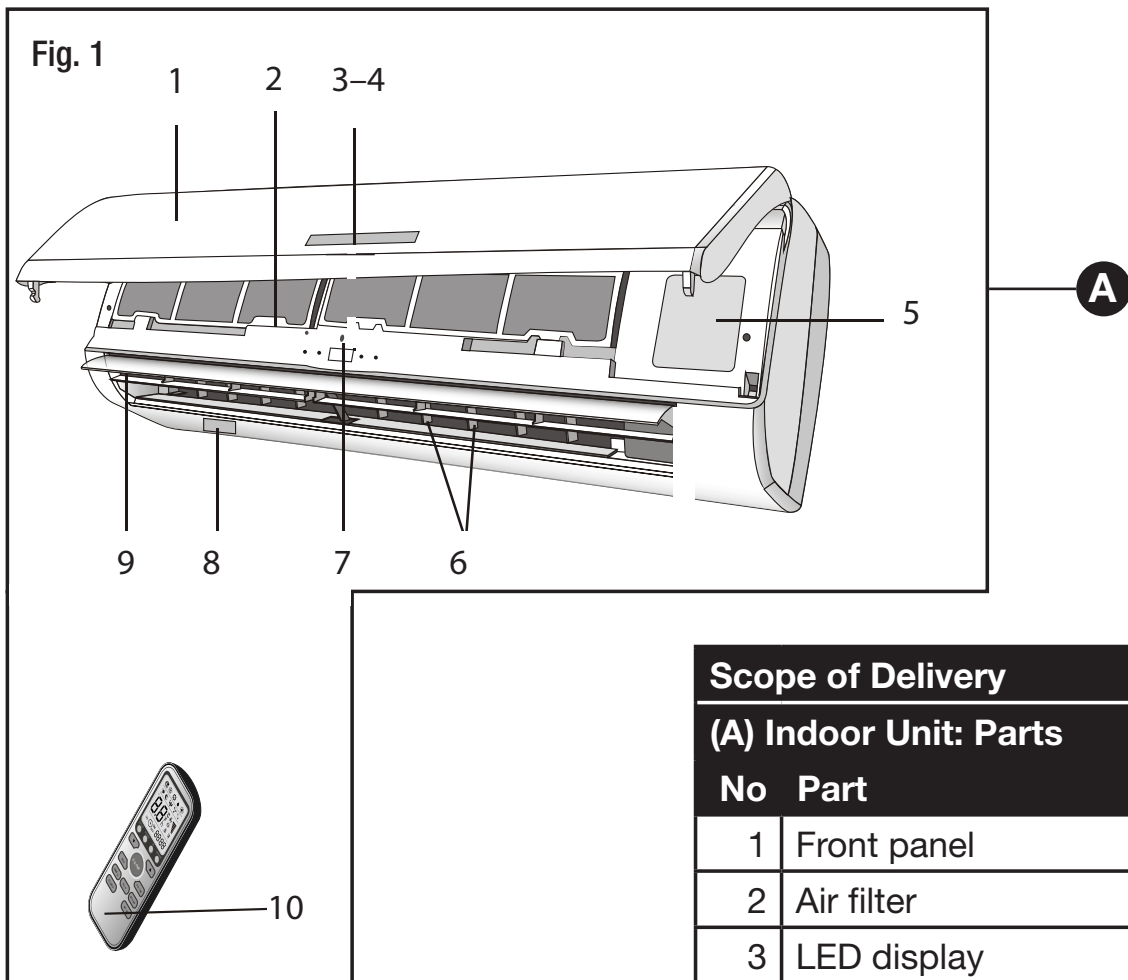
These installation instructions for the Reverse Cycle Inverter Air Conditioner are for use by an appropriately qualified, licensed installer. The appliance must be installed in accordance with all applicable regulations. Do not try to install the Air Conditioner on your own; doing so will expose you to danger and void the warranty.

FOR THE INSTALLER

- **Read this guide** before installing and using the appliance.
- **Compliance:** Install the appliance in accordance with all applicable regulations.
- **No children's access:** During installation of the indoor and outdoor units, do not allow children access to the working area.
- **Do NOT install the unit:**
 - In environments where the air could contain gas, oil or sulphur.
 - Near sources of heat.
 - At a distance of less than 50cm from flammable substances (e.g. alcohol or other flammable liquids or gases) and pressurised containers (e.g. spray cans).
- **Ventilation:** If the appliance is used in areas without the possibility of ventilation, precautions must be taken to prevent any leaks of refrigerant gas from remaining in the environment and creating a fire danger.
- **Outdoor unit:** Make sure that the base of the outdoor unit is firmly fixed.
- **Disconnect power circuits:** Before accessing the terminals, all the power circuits must be disconnected from the power supply.
- **Refrigerant system:** Check that air cannot enter the refrigerant system and check for refrigerant leaks when moving the air conditioner.
- **Voltage:** Ensure that the mains voltage corresponds to that stamped on the rating plate. Keep the switch or power plug clean.
- **Socket:** Check and ensure that the socket is suitable for the plug.
- **Fuse ratings:** The ratings of the fuse installed in the built-in control unit are T 5A / 250V.
- **Overload protection:** The user must protect the indoor unit with a fuse of suitable capacity for the maximum input current or with another overload protection device.
- **Packaging materials:** The packaging materials are recyclable and should be disposed of responsibly for recycling.
- **Test cycle:** Carry out a test cycle after installing the air conditioner and record the operating data. Make sure that air cannot enter the refrigerant system and check for refrigerant leaks when moving the air conditioner.

Product Overview

- This Reverse Cycle Inverter Air Conditioner is made up of an indoor and outdoor unit (Fig. 1 & 2), which are connected through properly insulated copper pipes (not supplied) and an electrical connecting cable.
- The **indoor unit** is installed on a wall of the room to be air conditioned.
- The **outdoor unit** is installed outdoors on the ground, or on a wall on suitable brackets.
- Technical data of the air conditioner are printed on the labels placed on the indoor and outdoor units.



Scope of Delivery

(A) Indoor Unit: Parts

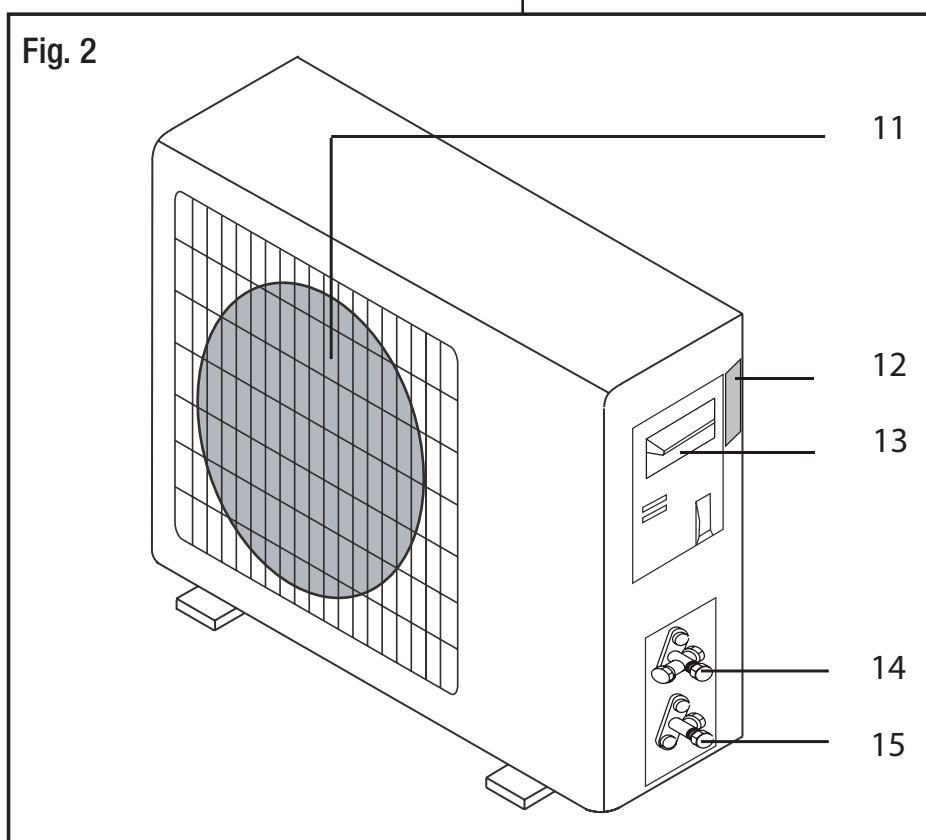
No	Part
1	Front panel
2	Air filter
3	LED display
4	Signal receiver
5	Terminal block cover
6	Deflectors
7	Emergency button
8	Indoor unit rating label
9	Airflow direction flaps
10	Remote control

Product Overview (Cont.)

(B) Outdoor Unit: Parts

No	Part
11	Air outlet grille
12	Outdoor unit rating label
13	Cover
14	Gas valve
15	Liquid valve

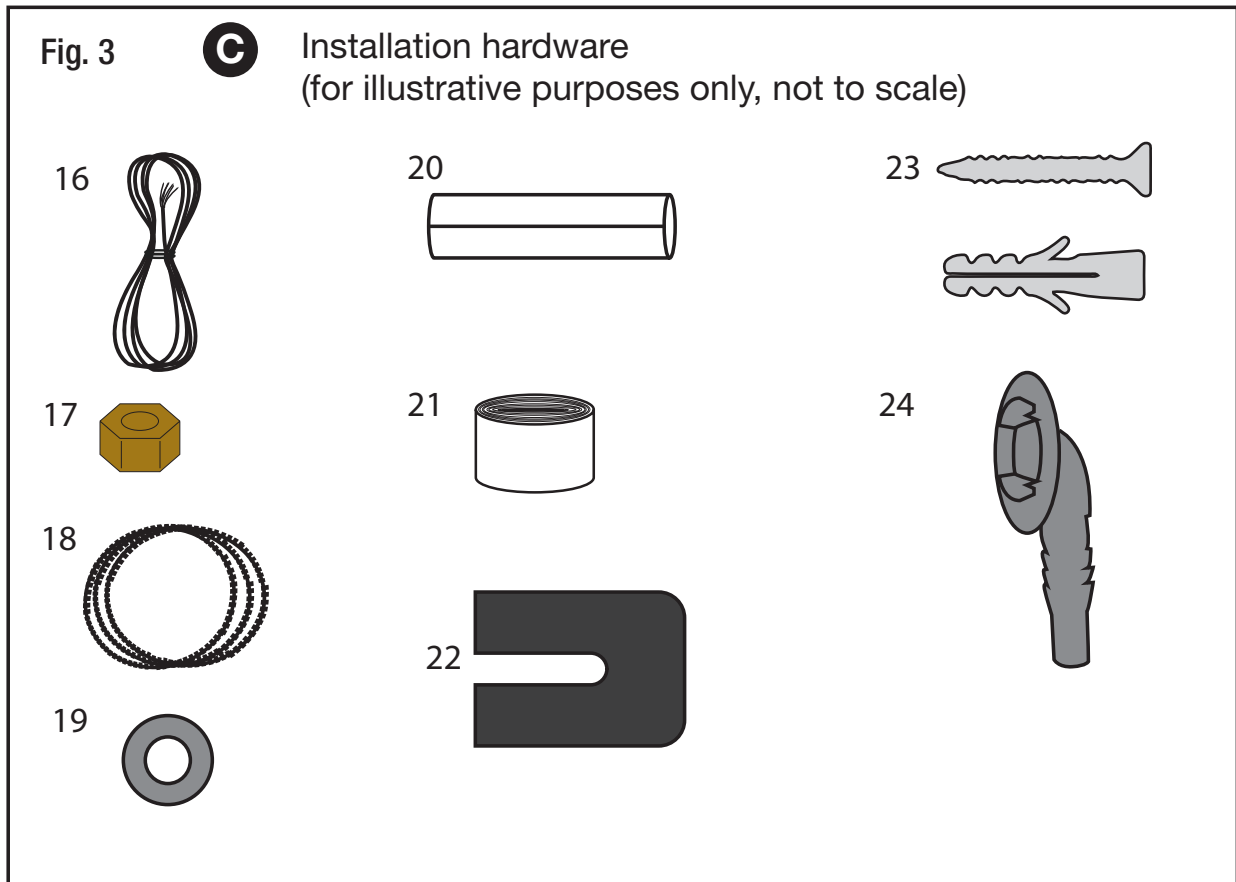
B



NOTE:

The diagrams throughout this manual are for illustrative purposes only and may vary slightly from the appearance of the unit purchased.

Product Overview (Cont.)



(C) Installation Hardware	
No	Part
16	Connection cable
17	Copper nuts (x4)
18	Drainage pipe
19	Wall bushing
20	Pipe insulation (open tube)
21	Binding tape
22	Rubber mat (for outdoor unit)
23	Screws & plugs (x6)
24	Drainage mouth

(D) Other inclusions (not pictured)
Remote control holder (for wall-mounting)
AAA Batteries (x2)
Instruction manual
Quick start guide
Warranty certificate

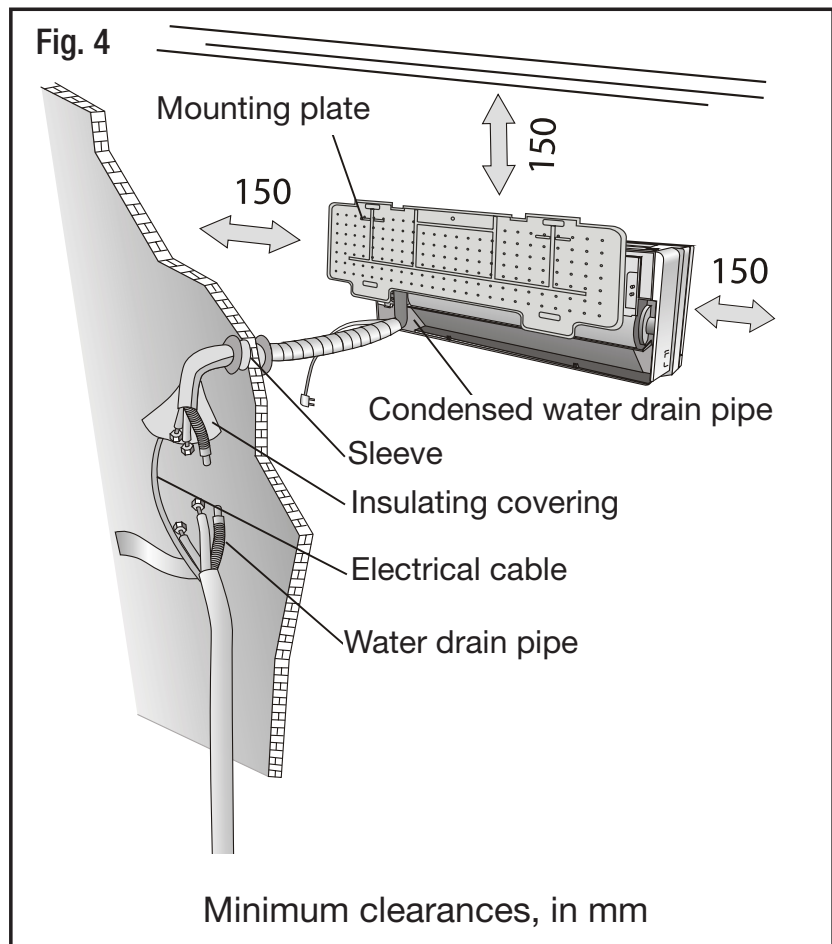
Selecting the Installation Place

PROTECT YOUR WARRANTY

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Indoor unit

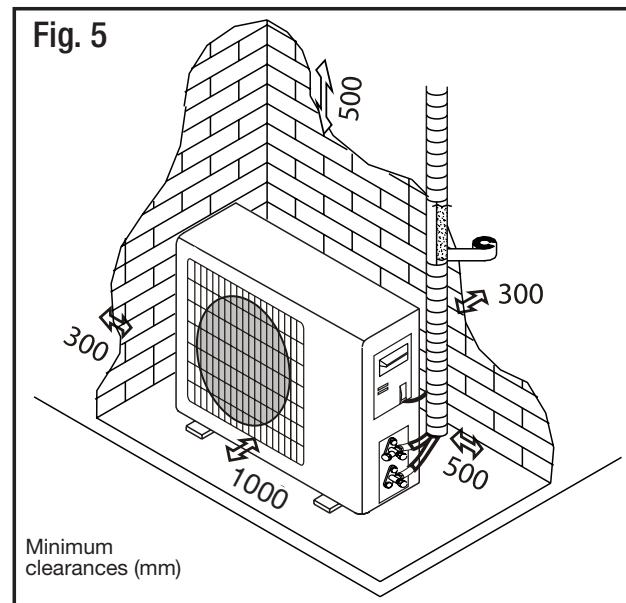
- Install the indoor unit level on a strong wall that is not subject to vibrations.
- The inlet and outlet ports should not be obstructed, the air should be able to blow all over the room.
- Do not install the unit near a source of heat, steam or flammable gas.
- Install the unit near an electric socket or private circuit.
- Do not install the unit where it will be exposed to direct sunlight.
- Install the unit where connection between indoor and outdoor unit is as easy as possible.
- Install the unit where it is easy to drain any condensation water.
- Observe the minimum clearances around the indoor unit as stated (Fig. 4).
- Check the machine operation regularly and leave the necessary spaces, as shown in the illustration, right.
- Install the indoor unit where the filter is easily accessible.



Selecting the Installation Place (Cont.)

Outdoor unit

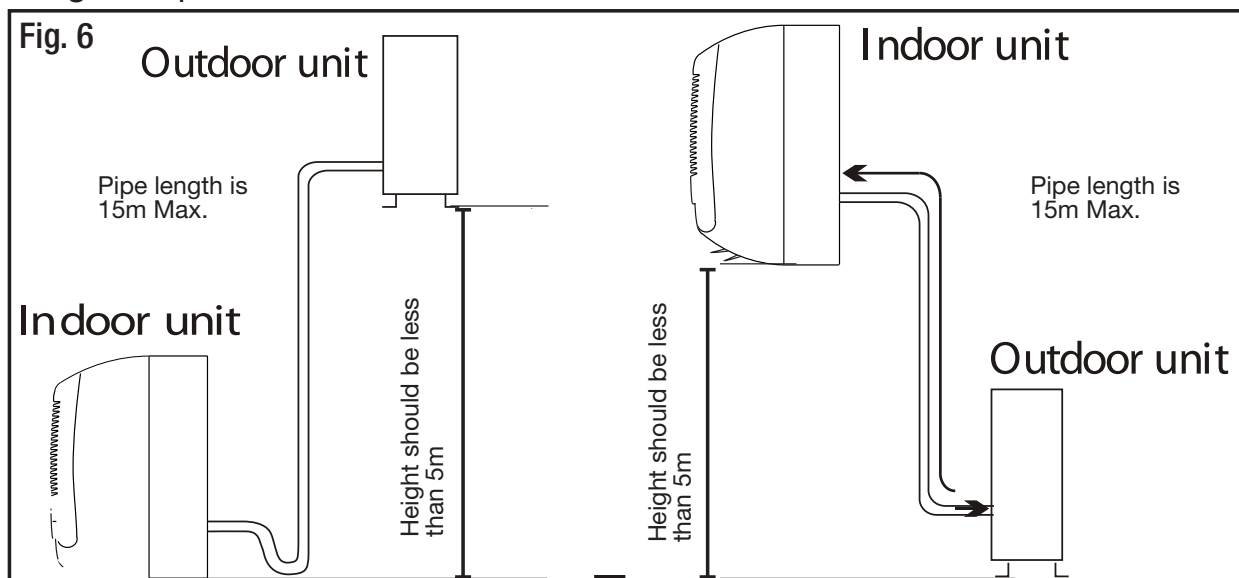
- Do not install the unit:
 - Near sources of heat, steam or flammable gas.
 - Where it is exposed to high winds or excessive dust.
 - Where people often pass.
- Avoid installing the unit where it will be exposed to direct sunlight (otherwise use a protection that will not interfere with the airflow).
- Select a place where the air discharge and operating sound level will not disturb neighbours.



- Leave the minimum clearances around the unit for free air circulation (Fig. 5).
- Install the outdoor unit in a safe and solid place.
- If the outdoor unit is subject to vibration, place rubber gaskets on the feet of the unit.

Installation diagram (Fig. 6)

Only persons and/or companies qualified and experienced in the installation, service and repair of refrigerant products should be permitted to do so. The purchaser must ensure that the person and/or company who is to install, service or repair this air conditioner has qualifications and experience in refrigerant products.



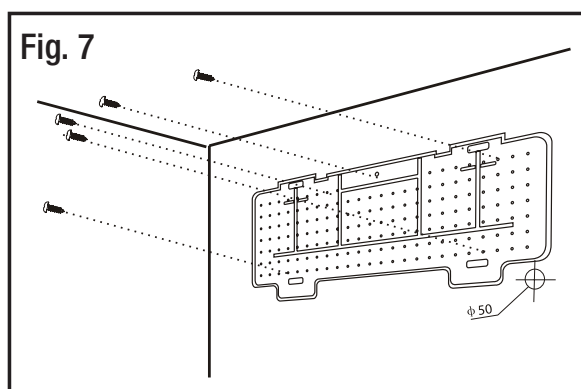
Installation

Installation of the indoor unit

- Before starting installation, decide on the position of the indoor and outdoor units, taking into account the minimum space required around the units.
- Install the indoor unit in the room to be air conditioned, avoid installation in corridors or communal areas.
- Install the indoor unit at a height of at least 2.5m from the ground.

Installing the mounting plate

- Use a spirit level to put the mounting plate in a perfectly level position vertically and horizontally.
- Drill 32mm deep holes in the wall to fix the plate. Use a drill bit to fit the 6mm plugs supplied.
- Insert the plastic anchors into the hole.
- Fix the mounting plate by using the provided tapping screws (Fig. 7).
- Check that the mounting plate is correctly fixed.

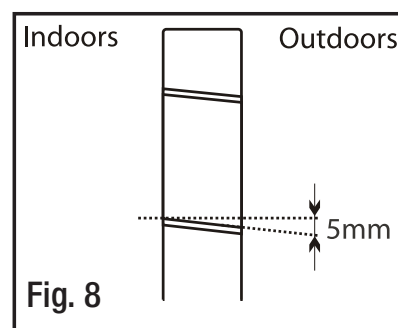


Drilling a hole in the wall for the piping

- Decide where to drill the hole in the wall for the piping, if necessary, according to the position of the mounting plate.
- Install a flexible flange through the hole in the wall to keep the latter intact and clean.

NOTE: The hole must slope downwards towards the exterior (Fig. 8).

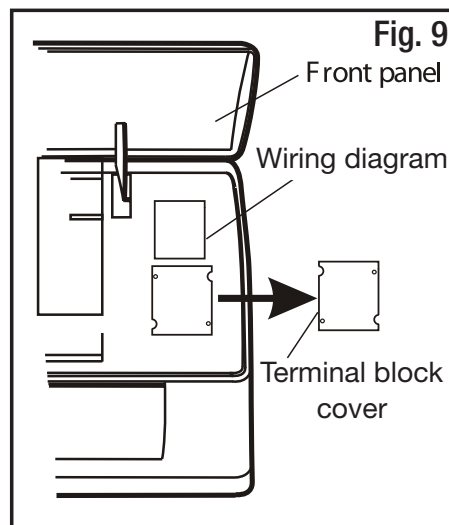
Keep the drain pipe down towards the direction of the wall hole, otherwise leakage may occur.



Installation (Cont.)

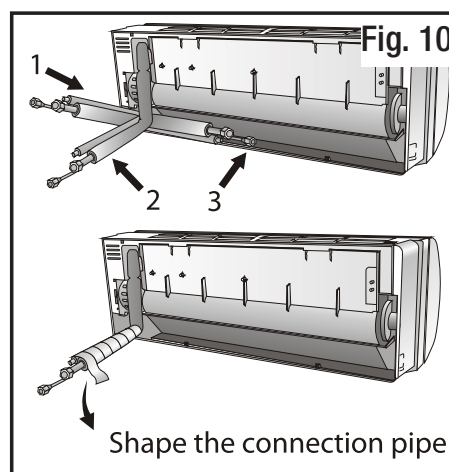
Electrical connections for the indoor unit

- Lift the front panel.
- Take off the cover, as indicated (Fig. 9), by removing a screw or breaking the hooks.
- For the electrical connections, see the circuit diagram on the right part of the unit under the front panel.
- Connect the cable wires to the screw terminals by following the numbering. Use wire of a size suitable to the electric power input (see the unit rating plate) and according to all current national safety code requirements.
- The cable connecting the outdoor and indoor units must be suitable for outdoor use.
- An efficient earth connection must be ensured.
- The appliance must be fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III conditions, and these means must be incorporated in the fixed wiring in accordance with the wiring rules.
- If the power cable is damaged, contact the after sales support line for advice on replacement.



Refrigerant piping connection

- The piping can be run in the three directions, as indicated by the numbers 1 to 3 in Fig. 10. When the piping is run in directions 1 or 3, cut a notch along the groove on the side of the indoor unit with a cutter.
- Run the piping in the direction of the wall hole and bind the copper pipes, the drain pipe and the power cables together with tape at the bottom.

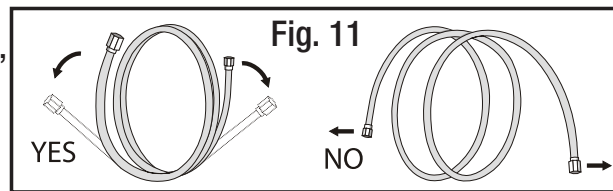


View from rear

Installation (Cont.)

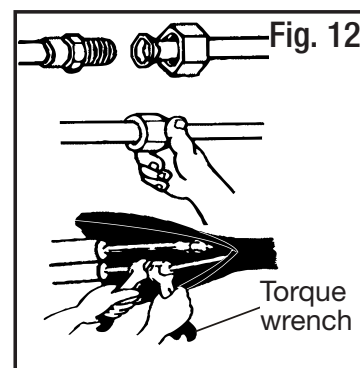
Connecting the pipes

- Do not remove the cap from the pipe until connecting it, to avoid dampness or dirt from entering.
- If the pipe is bent or pulled too often, it will become stiff. Do not bend it more than three times at one point.
- When extending rolled pipe, straighten the pipe by unwinding it gently, as illustrated (Fig. 11).



Connections to the indoor unit

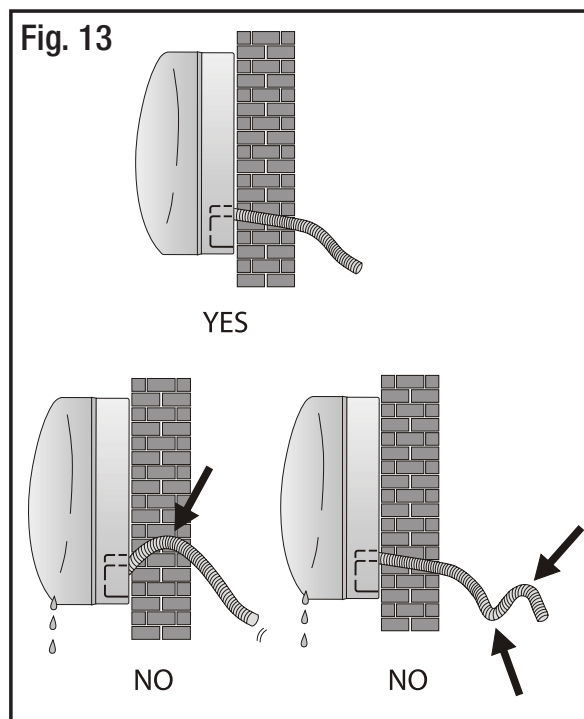
- Remove the indoor unit pipe cap and check that there is no debris inside.
- Insert the nut and create a flange at the extreme end of the connection pipe.
- Tighten the connections by using two wrenches working in opposite directions (Fig. 12).



Water drainage from the indoor unit

The condensed water drainage from the indoor unit is fundamental for the success of the installation.

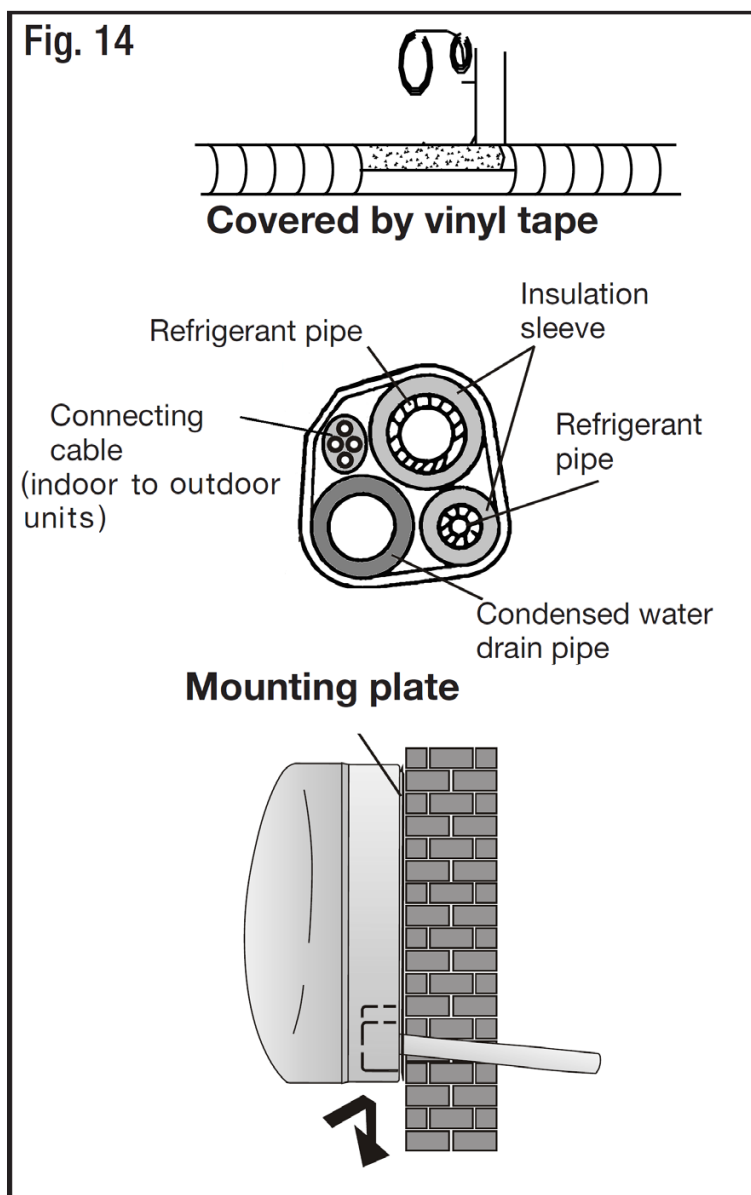
- Place the drain hose below the piping, taking care not to create siphons.
- The drain hose must slant downwards to aid drainage (Fig. 13).
- Do not bend the drain hose or leave it protruding or twisted and do not put the end of it in water. If an extension is connected to the drain hose, ensure that it is lagged when it passes into the indoor unit.
- If the piping is installed to the right, the pipes, power cable and drain hose must be lagged and secured onto the rear of the unit with a pipe connection.
 - 1) Insert the pipe connection into the relative slot.
 - 2) Press to join the pipe connection to the base.



Installation (Cont.)

After having connected the pipe according to the instructions, install the connection cables, then the drain pipe (Fig. 14). After connection, lag the pipe, cables and drain pipe with the insulating material.

- Arrange the pipes, cables and drain hose well.
- Lag the pipe joints with insulating material, securing it with vinyl tape.
- Run the bound pipe, cables and drain pipe through the wall hole and mount the indoor unit onto the upper part of the mounting plate securely.
- Press and push the lower part of the indoor unit tightly against the mounting plate.



Installation (Cont.)

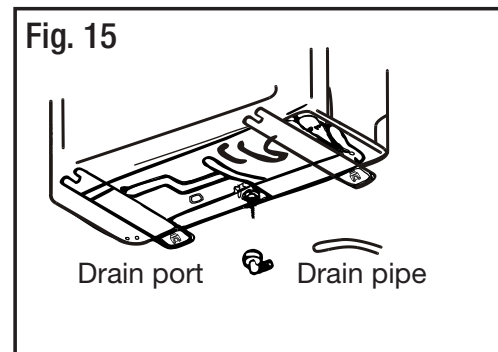
Installation of the outdoor unit

- The outdoor unit should be installed on a solid wall, or on the ground, and fastened securely.
- Before connecting pipes and cables, decide on the best position on the wall, leaving enough space for easy maintenance.
- Fasten the support to the wall using screw anchors that are particularly suited to the type of wall.
- Use the largest size wall anchors that will suit the size and weight of the unit, keeping in mind that the mounting will need to support the weight and vibration of the unit for many years to come, without loosening.
- The unit must be installed following all relevant local regulations.

Water drainage from the outdoor unit

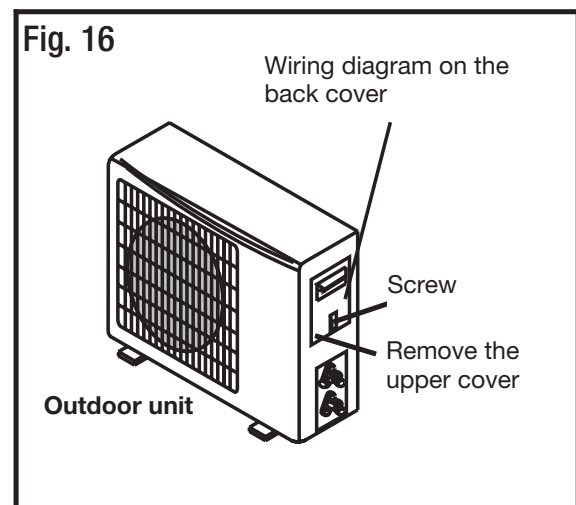
Condensed water and ice formed in the outdoor unit while in heating mode can be drained away through a drain pipe.

- Fasten the drain port in the 25mm hole placed in the part of the unit, as illustrated (Fig. 15).
- Connect the drain port and the drain pipe.
- Make sure that water is drained into a suitable place.



Electrical connections

- Take off the cover.
- Connect the cable wires to the terminal board using the same numbering as in the indoor unit.
- For the electrical connections, see the wiring diagram on the back of the cover (Fig. 16).
- Fasten the cables with a cable clamp.
- An efficient earth connection must be ensured.
- Replace the cover.

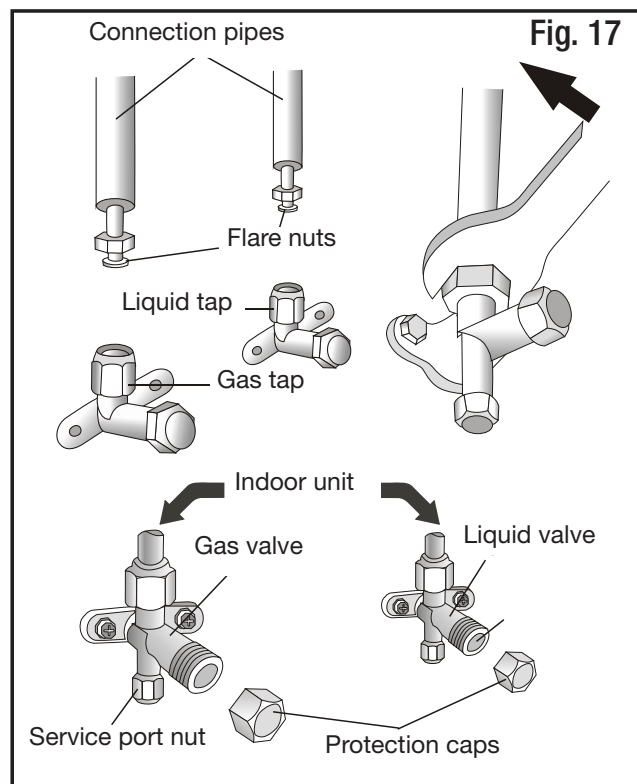


Installation (Cont.)

Connecting the pipes

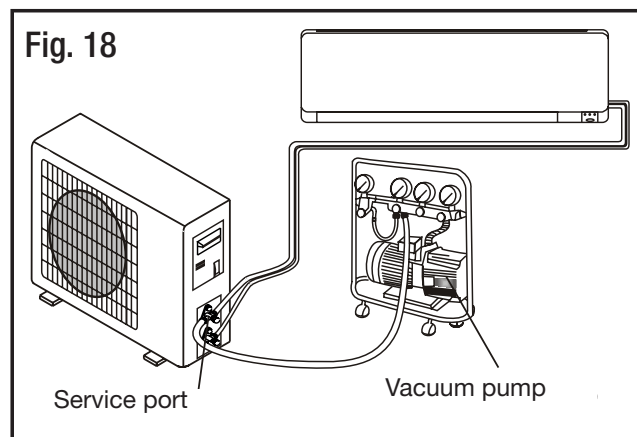
Screw the flare nuts to the outdoor unit coupling with the same tightening procedures described for the indoor unit. To avoid leakage, pay attention to the following points:

- Tighten the flare nuts using two wrenches, taking care not to damage the pipes (Fig. 17).
- If the tightening torque is not sufficient, there will probably be some leakage. With excessive tightening torque there may also be some leakage, as the flange could be damaged.
- The best way to tighten the connections is using a fixed wrench and a torque wrench, as illustrated in Fig. 12 on page 11.



Bleeding

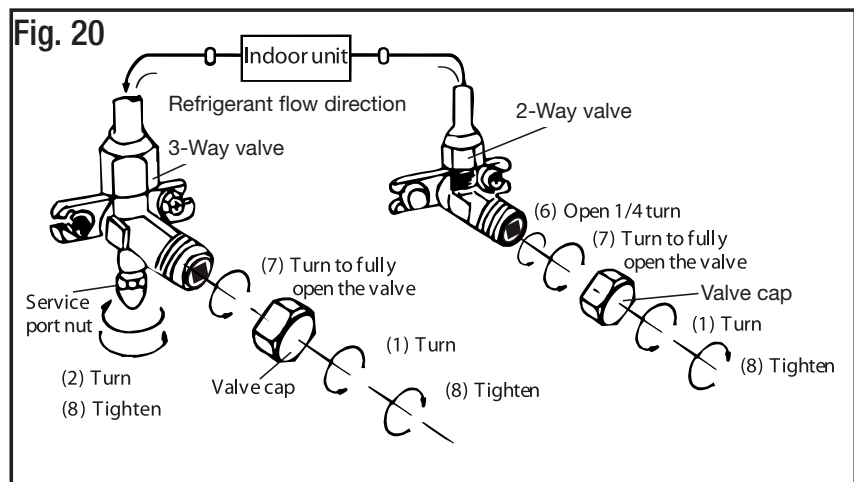
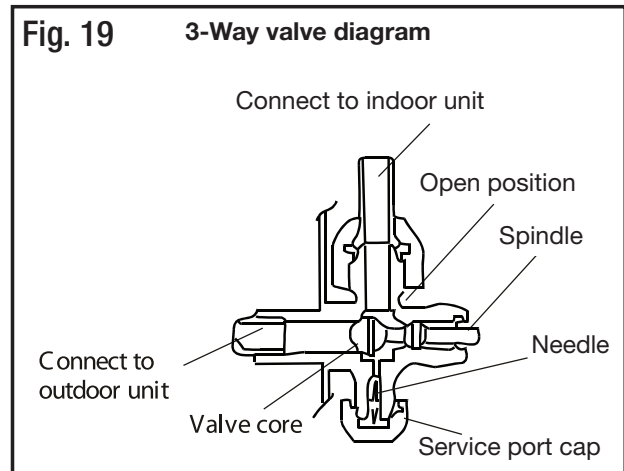
Air and humidity left inside the refrigerant circuit can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit by using a vacuum pump (Fig. 18). Detailed instructions follow on the next page.



Installation (Cont.)

Proceed as illustrated in Fig. 19 and Fig. 20 below:

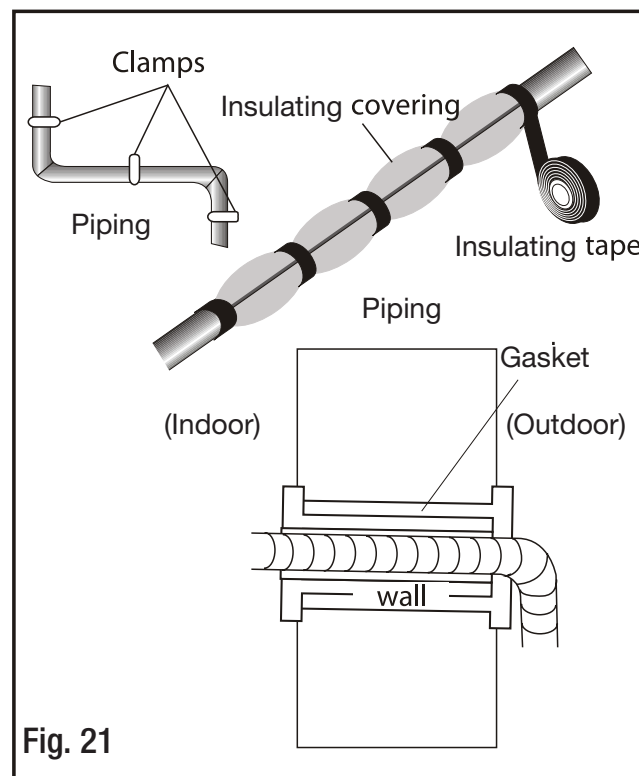
- Unscrew and remove the caps from the 2-way and 3-way valves.
- Unscrew and remove the cap from the service port.
- Connect the vacuum pump hose to the service port.
- Operate the vacuum pump for 10 - 15 minutes until an absolute vacuum of 10mm Hg has been reached.
- With the vacuum pump still in operation, close the low-pressure knob on the vacuum pump coupling. Stop the vacuum pump.
- Open the 2-way valve by $\frac{1}{4}$ turn and then close it after 10 seconds. Check all the joints for leaks using liquid soap or an electronic leak device.
- Turn the body of the 2-way and 3-way valves. Disconnect the vacuum pump hose.
- Replace and tighten all the caps on the valves.



Installation (Cont.)

Final stage

- Wind insulating covering around the joints of the indoor unit and fix it with insulating tape (Fig. 21).
- Fix the exceeding part of the signal cable to the piping or to the outdoor unit.
- Fix the piping to the wall (after having coated it with insulating tape) using clamps, or insert them into plastic slots.
- Seal the hole in the wall through which the piping is passed so that no air or water can enter.



Indoor unit test

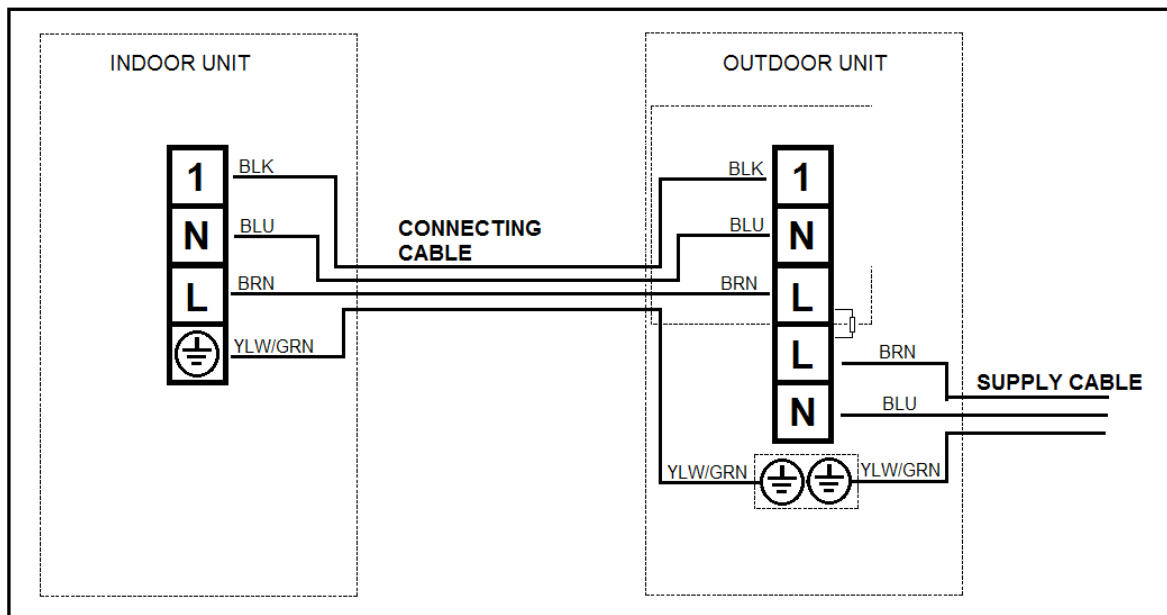
- Does the ON/OFF switch work properly?
- Do the HEATING, COOLING and FAN modes operate normally?
- Do the TIMER-ON and TIMER-OFF functions operate properly?
- Does each indicator light work properly?
- Do the flaps for air flow direction operate normally?
- Is the condensed water drained regularly?

Outdoor unit test

- Is there any abnormal noise or vibration during operation?
- Could the noise, airflow or condensed water drainage disturb the neighbours?
- Is there any coolant leakage?

NOTE: The electronic controller allows the compressor to start only three minutes after voltage has reached the system.

Wiring Diagram



Information for the Installer

Pipe details


Inverter Air Conditioner Capacity	2.5kW	3.2kW	5kW	7kW
Liquid pipe diameter	6mm (1/4")	6mm (1/4")	6mm (1/4")	9.52mm (3/8")
Gas pipe diameter	9.52mm (3/8")	12mm (1/2")	12mm (1/2")	15.88mm (5/8")
Length of pipe with standard charge	3m	3m	4m	4m
Type of refrigerant	R410A	R410A	R410A	R410A
Max distance between indoor and outdoor unit	15m	15m	15m	15m
Additional gas charge	20g/m	20g/m	30g/m	30g/m
Max difference between level	5m	5m	5m	5m

Tightening torque for protection caps and flange connection

Pipe Diameter	Tightening Torque (N x m)	Corresponding Stress (using a 20cm wrench)	Part	Tightening Torque (N x m)
6mm (1/4")	15 - 20	Wrist strength	Service port nut	7 - 9
9.52mm (3/8")	31 - 35	Arm strength	Protection caps	25 - 30
12mm (1/2")	35 - 45	Arm strength		
15.88mm (5/8")	75 - 80	Arm strength		

Information for the Installer (Cont.)

Cable wire specifications

Model Capacity (kW)		2.5kW	3.2kW	5kW	7kW
		Sectional Area			
Power Supply Cable	N (min.)	1.0mm ² AWG18	1.0mm ² AWG18	1.5mm ² AWG16	2.5mm ² AWG14
	L (min.)	1.0mm ² AWG18	1.0mm ² AWG18	1.5mm ² AWG16	2.5mm ² AWG14
	E (min.)	1.0mm ² AWG18	1.0mm ² AWG18	1.5mm ² AWG16	2.5mm ² AWG14
Connection Supply Cable	N (min.)	1.0mm ²	1.0mm ²	1.5mm ²	0.75mm ²
	L (min.)	1.0mm ²	1.0mm ²	1.5mm ²	0.75mm ²
	1	1.0mm ²	1.0mm ²	1.5mm ²	0.75mm ²
	 (min.)	1.0mm ²	1.0mm ²	1.5mm ²	0.75mm ²

Compliance

This appliance has been fully tested and meets all requirements as set out by standards AS/NZS 3823.1.1 and AS/NZS 3823.2.40,

Information for the Installer (Cont.)

Technical specifications

Model Number	TAK-9000-25	
Capacity	Cooling	2.50kW
	Heating	2.60kW
Rated Power	Cooling	670W
	Heating	680W
Rated Current	Cooling	3.6A
	Heating	3.6A
Max. Input Current	Cooling	6.0A
	Heating	6.7A
Max. Power Input	Cooling	1300W
	Heating	1500W
Room size suitability	9–16m ²	
Rated Voltage	220-240V AC	
Rated Frequency	50Hz	
Ingress Protection	Outdoor Unit	IPX4
Electric Shock Protection	Outdoor Unit	Class I
Net Weight	Indoor Unit	10kg
	Outdoor Unit	32kg
Max. Pressure	Discharge	4.5MPa
	Suction	1.9MPa
Noise Level	Indoor Unit	39dB(A)
	Outdoor Unit	51dB(A)
Refrigerant Type	Type	R410A
	Quantity	930g
Indoor Airflow Volume	Cooling	600m ³ /h
	Heating	600m ³ /h
Dimensions (mm)	Indoor Unit	800 x 280 x 183
	Outdoor Unit	760 x 551 x 256

Information for the Installer (Cont.)

Technical specifications

Model Number	TAK-12000-32	
Capacity	Cooling	3.20kW
	Heating	3.20kW
Rated Power	Cooling	840W
	Heating	840W
Rated Current	Cooling	5.0A
	Heating	5.0A
Max. Input Current	Cooling	5.3A
	Heating	7.6A
Max. Power Input	Cooling	1150W
	Heating	1400W
Room size suitability	15–23m ²	
Rated Voltage	220-240V AC	
Rated Frequency	50Hz	
Ingress Protection	Outdoor Unit	IPX4
Electric Shock Protection	Outdoor Unit	Class I
Net Weight	Indoor Unit	11kg
	Outdoor Unit	32kg
Max. Pressure	Discharge	4.5MPa
	Suction	1.9MPa
Noise Level	Indoor Unit	39dB(A)
	Outdoor Unit	53dB(A)
Refrigerant Type	Type	R410A
	Quantity	1000g
Indoor Airflow Volume	Cooling	750m ³ /h
	Heating	750m ³ /h
Dimensions (mm)	Indoor Unit	898 x 280 x 200
	Outdoor Unit	760 x 551 x 256

Information for the Installer (Cont.)

Technical specifications

Model Number	TAK-18000-50	
Capacity	Cooling	5.00kW
	Heating	5.20kW
Rated Power	Cooling	1480W
	Heating	1540W
Rated Current	Cooling	6.7A
	Heating	6.9A
Max. Input Current	Cooling	10.3A
	Heating	10.9A
Max. Power Input	Cooling	2300W
	Heating	2450W
Room size suitability	25–40m ²	
Rated Voltage	220-240V AC	
Rated Frequency	50Hz	
Ingress Protection	Outdoor Unit	IPX4
Electric Shock Protection	Outdoor Unit	Class I
Net Weight	Indoor Unit	15kg
	Outdoor Unit	40kg
Max. Pressure	Discharge	4.5MPa
	Suction	1.9MPa
Noise Level	Indoor Unit	47dB(A)
	Outdoor Unit	55dB(A)
Refrigerant Type	Type	R410A
	Quantity	1400g
Indoor Airflow Volume	Cooling	1050m ³ /h
	Heating	1050m ³ /h
Dimensions (mm)	Indoor Unit	1033 x 313 x 202
	Outdoor Unit	780 x 605 x 290

Information for the Installer (Cont.)

Technical specifications

Model Number	TAK-24000-70	
Capacity	Cooling	7.00kW
	Heating	7.50kW
Rated Power	Cooling	2050W
	Heating	2100W
Rated Current	Cooling	9.4A
	Heating	9.6A
Max. Input Current	Cooling	13.5A
	Heating	14.5A
Max. Power Input	Cooling	2800W
	Heating	2900W
Room size suitability	30–50m ²	
Rated Voltage	220-240V AC	
Rated Frequency	50Hz	
Ingress Protection	Outdoor Unit	IPX4
Electric Shock Protection	Outdoor Unit	Class I
Net Weight	Indoor Unit	20kg
	Outdoor Unit	56kg
Max. Pressure	Discharge	4.5MPa
	Suction	1.9MPa
Noise Level	Indoor Unit	49dB(A)
	Outdoor Unit	60dB(A)
Refrigerant Type	Type	R410A
	Quantity	2150g
Indoor Airflow Volume	Cooling	1400m ³ /h
	Heating	1550m ³ /h
Dimensions (mm)	Indoor Unit	1186 x 340 x 260
	Outdoor Unit	900 x 805 x 360

Instruction Manual Revision Index

Version No	Issue Date	Description
V1.0	01 March 2016	Original release

After Sales Support

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