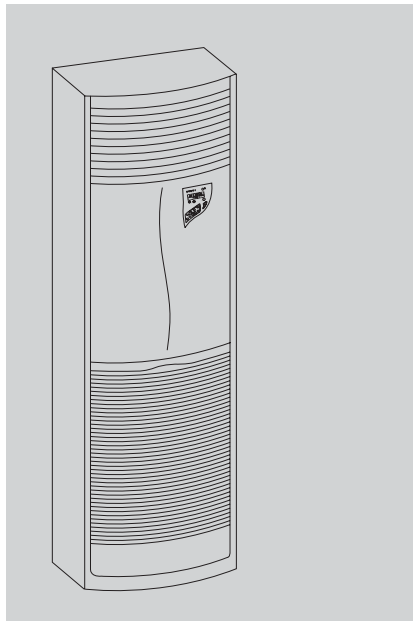




Technical Service Manual

SERIES: FS KFR120L

Free Standing



REFRIGERANT

R407C

HEAT PUMP

Rev.: 01

Date: 29/02/04

Model			FS 1200		
Installation method			Wall mounted		
Characteristic		Units	Cooling	Heating	
Capacity		Kcal/hr	11000	12800	
		Btu/hr	44000	51200	
		W	12900	15000	
Total input		W	4824	4567	
COP/EER		W/W	2.55	2.86	
Power supply (voltage, cycle)			400/50/3		
Circuit breaker rating			A 3X16		
I N D O O R U N I T	Fan type & qty.		Centrifugal		
	Fan speed (HI)		RPM		
	Airflow (HI)		m ³ /hr (CFM)		
	Noise Power		dBA		
	Condensate drain tube I.D		mm		
	Dimensions		W	mm	600
			D	mm	370
			H	mm	1900
	Weight		Kg		
	Package dimensions		mm		
	Units per palet		units		
	Height stacking		units		
O U T D O O R U N I T	Refrigerant control		R-407C		
	Compressor type & model		SCROLL HR61YAB LG		
	Fan type & qty.		AXIAL X 2		
	Fan speed - HI		RPM		
	Airflow		m ³ /hr (CFM)		
	Noise Power		dBA		
	Dimensions		W	mm	900
			D	mm	340
			H	mm	970
	Weight		Kg		
	Packing dimensions		mm		
	Height stacking		units		
Units per palet		units			
Refrigerant		R407C			
Charge		gram			
T U B E S	Condensate drain tube I.D		mm		
	Tube size O.D		liquid	in.	
			suction	in.	
	Connection between units		Indoor-Outdoor		
height difference					
tubing length					
A C C.	Operation control type		Operation by hand on LCD		
	Heating elements		W		
	Ducts				
	Others				

Operating range

3

NOTES:

1. Rating conditions ISO/CD 13253R

Cooling: indoor: 27°C (80°F) DB 19°C (66°F) WB

Outdoor: 35°C (95°F) DB

Heating: indoor: 20°C (68°F) DB

Outdoor: 7°C (45°F) DB 6°C (43°F) WB

Refrigerant tubing length (one way) 7.5m (24.6 ft)

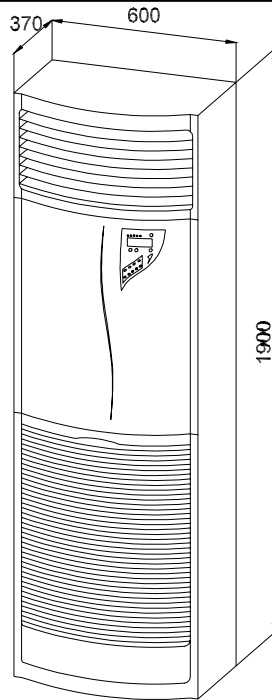
2. Guaranteed operating range:

		Indoor	Outdoor
Cooling	Upper limit	32°C DB, 23°C WB	46°C DB
	Lower limit	21°C DB, 15°C WB	21°C DB
Heating	Upper limit	27°C DB	24°C DB, 18°C WB
	Lower limit	20°C DB	-9°C DB, -10°C WB
Voltage	1 PH	198 – 242 V	
	3 PH	360 – 440 V	

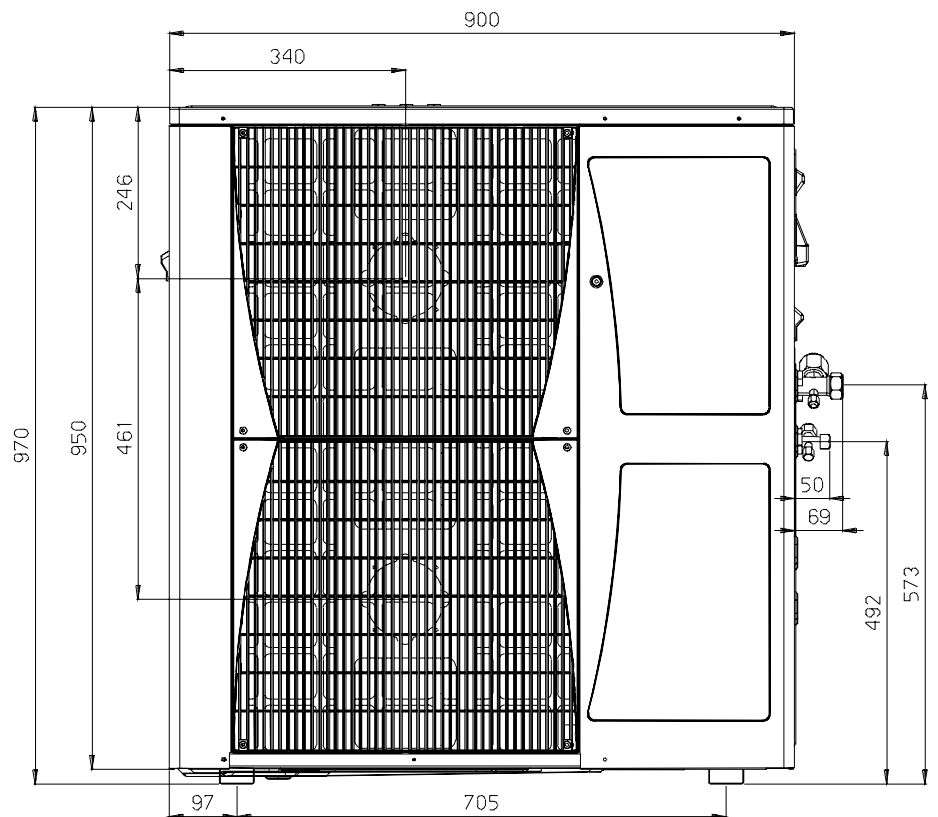
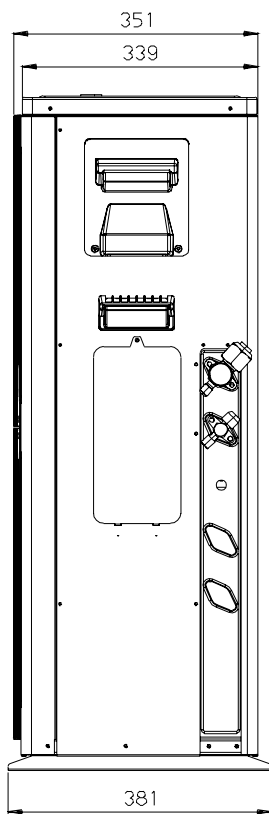
Outline dimensions

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FS KFR 120L /OU10-50 R407C

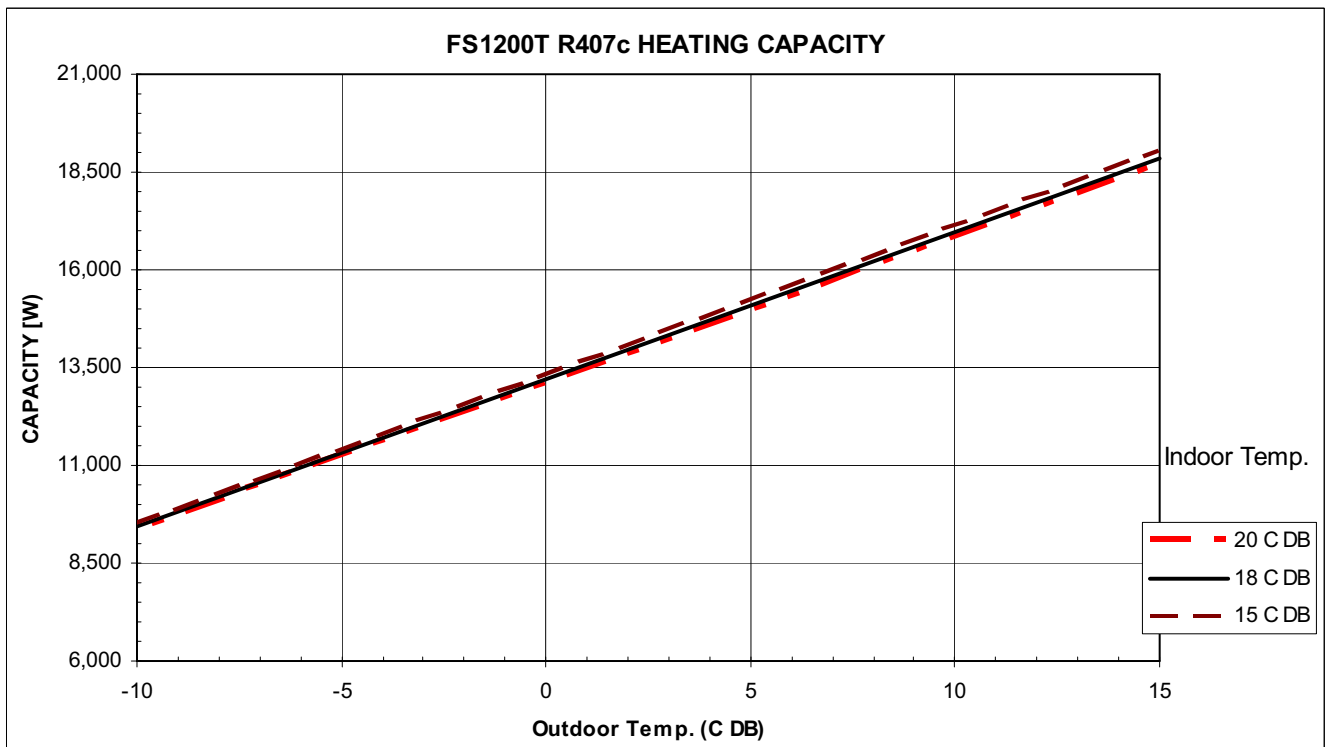
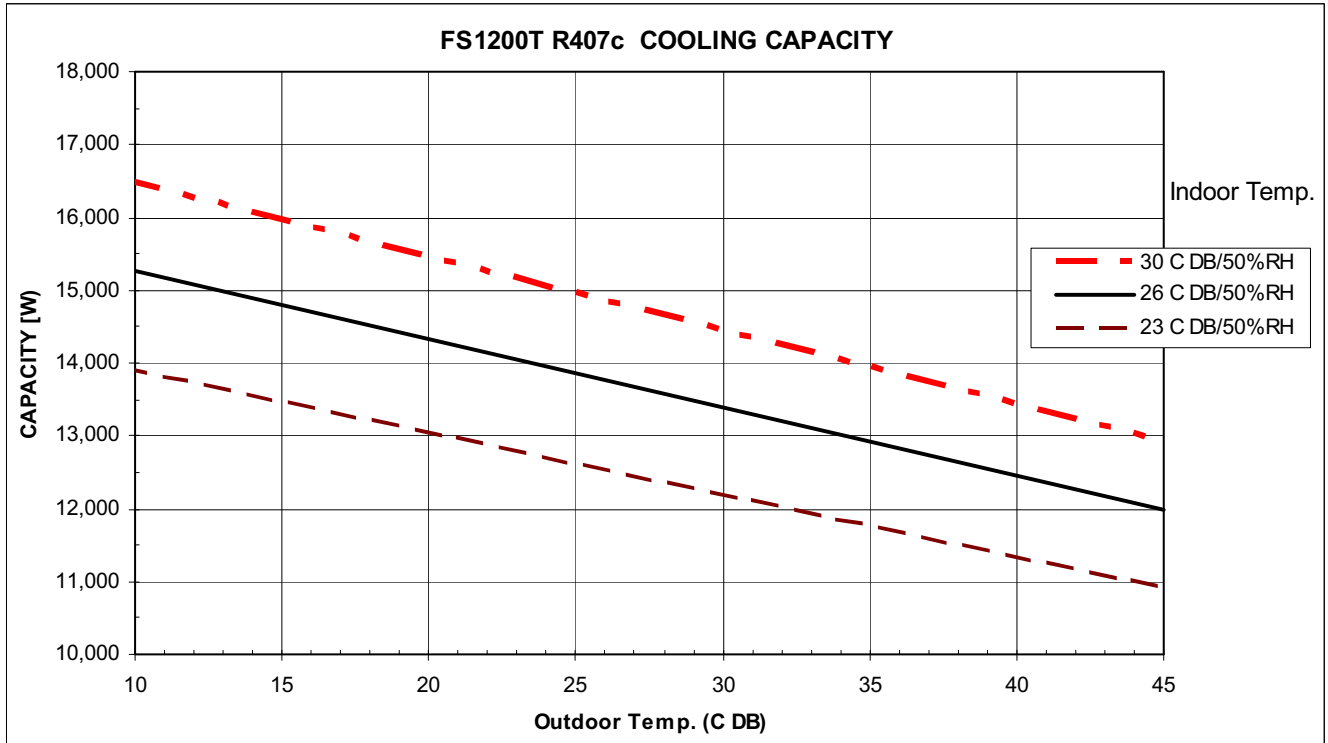


Unit:mm



Performance curves

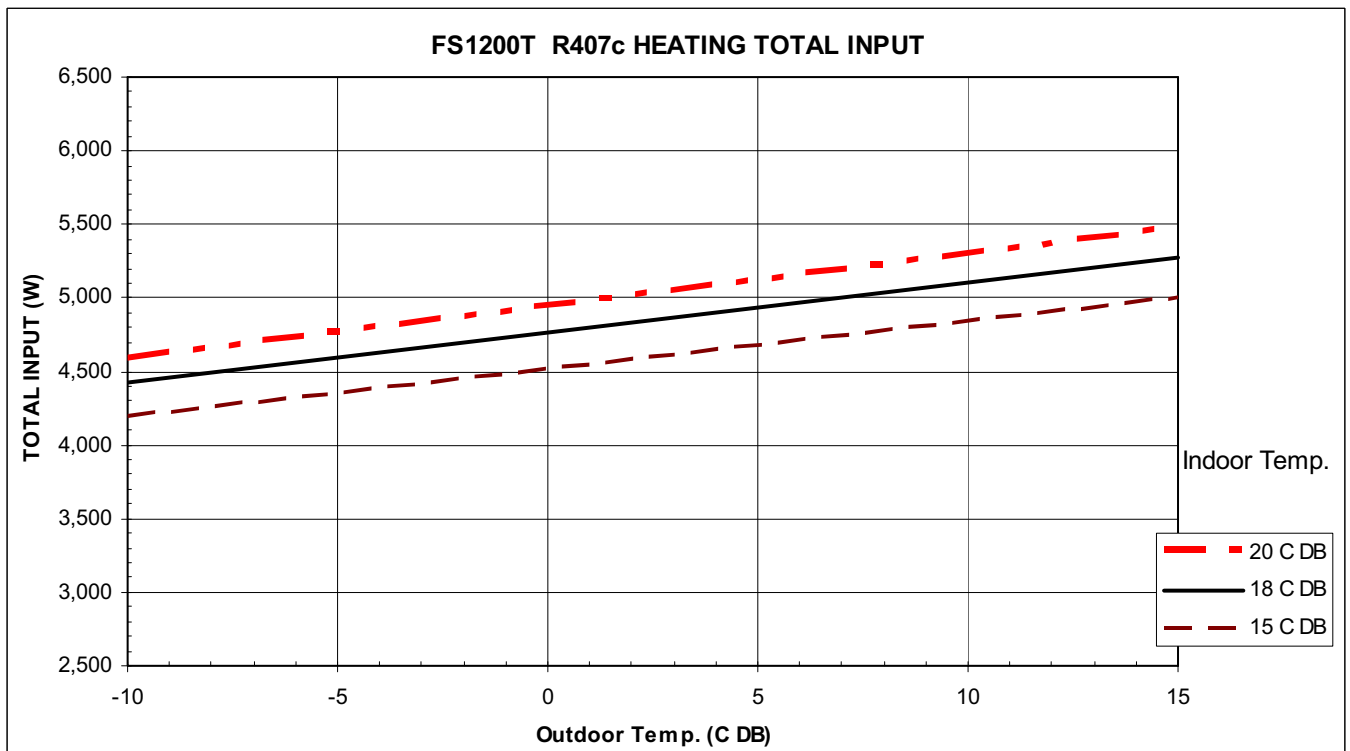
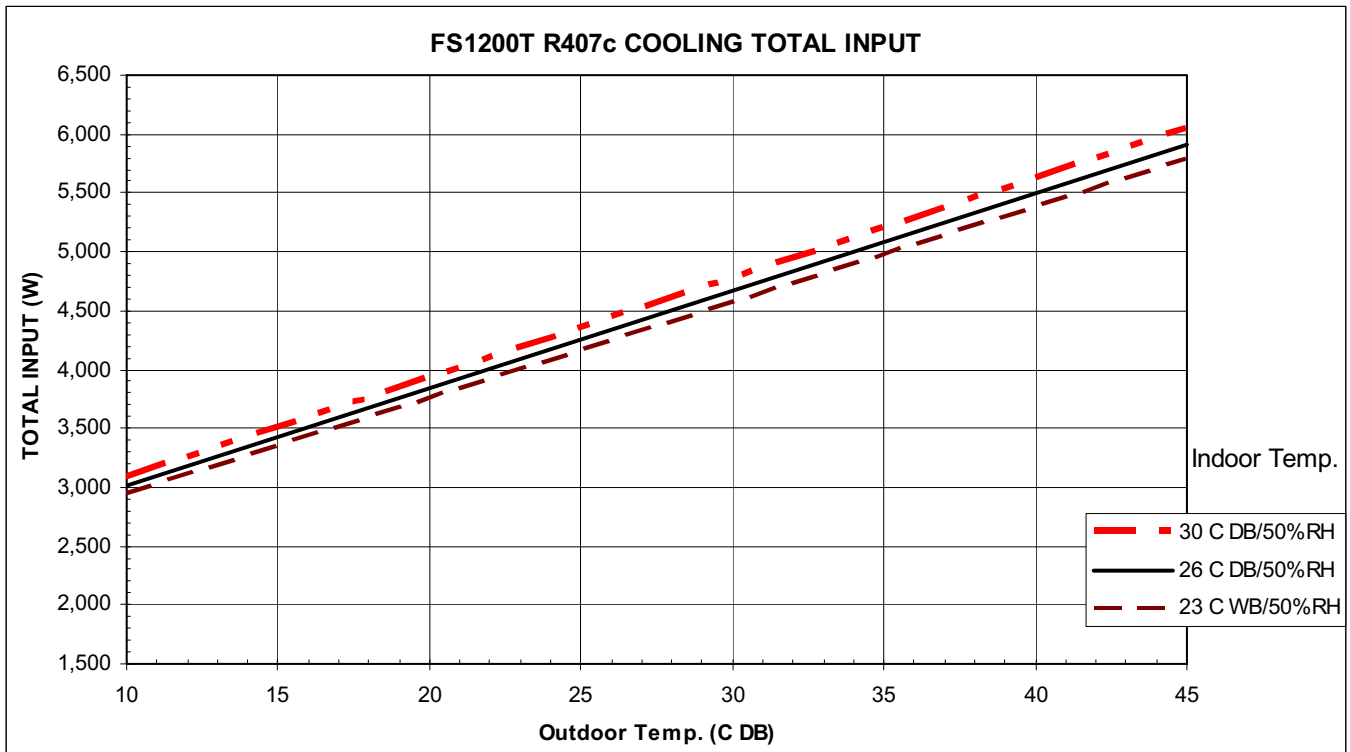
Model: FS KFR 120L



Performance curves

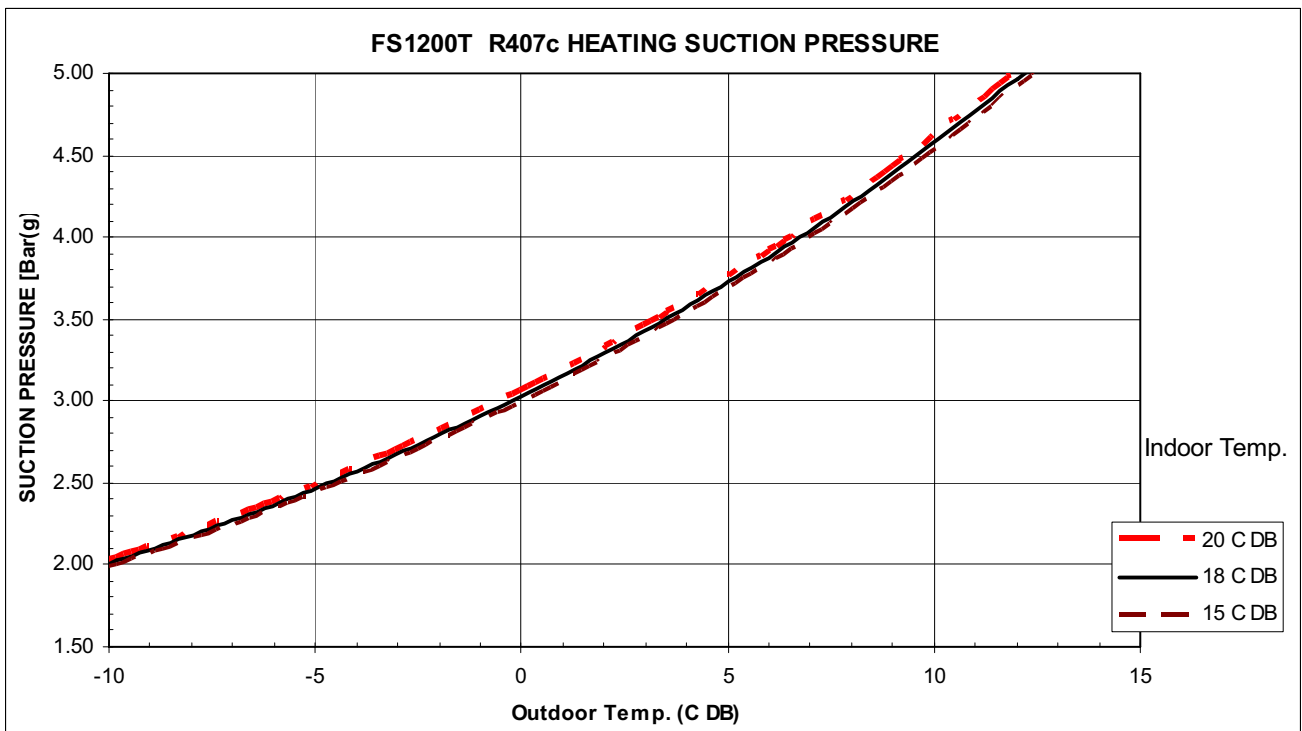
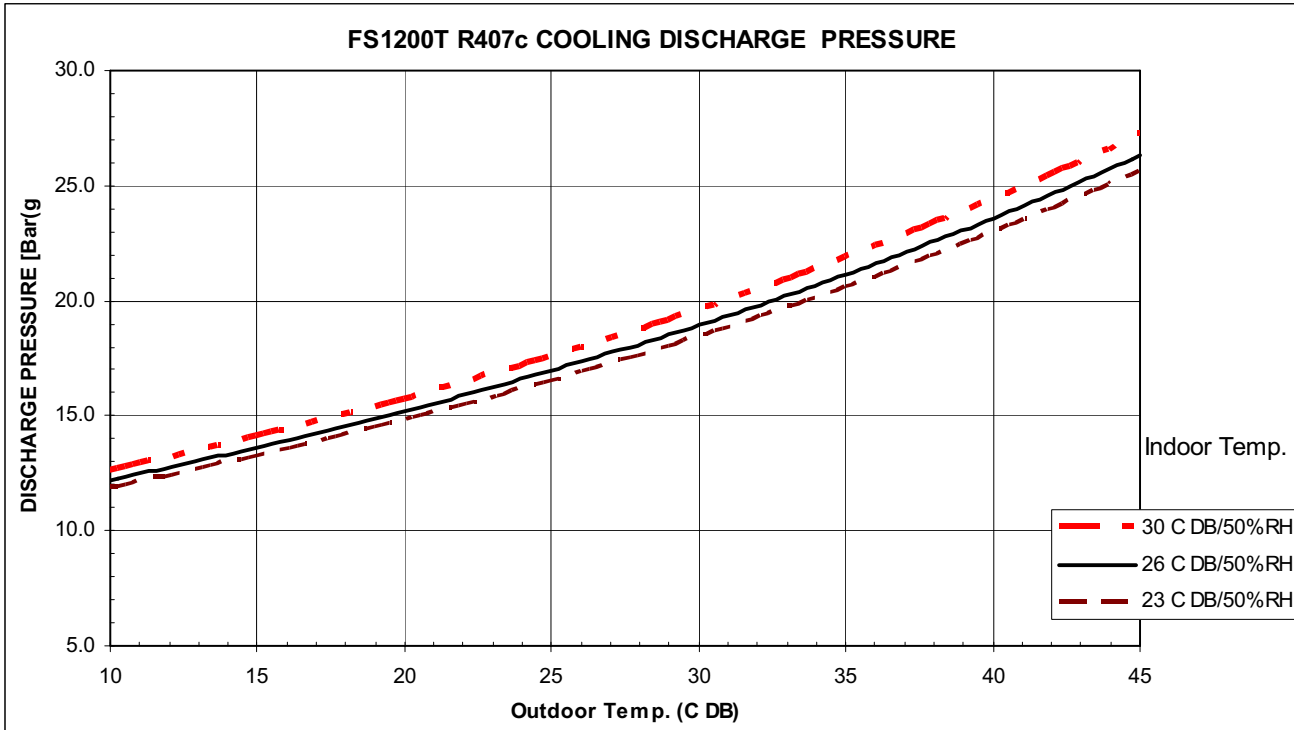
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Model: FS KFR 120L



Performance curves

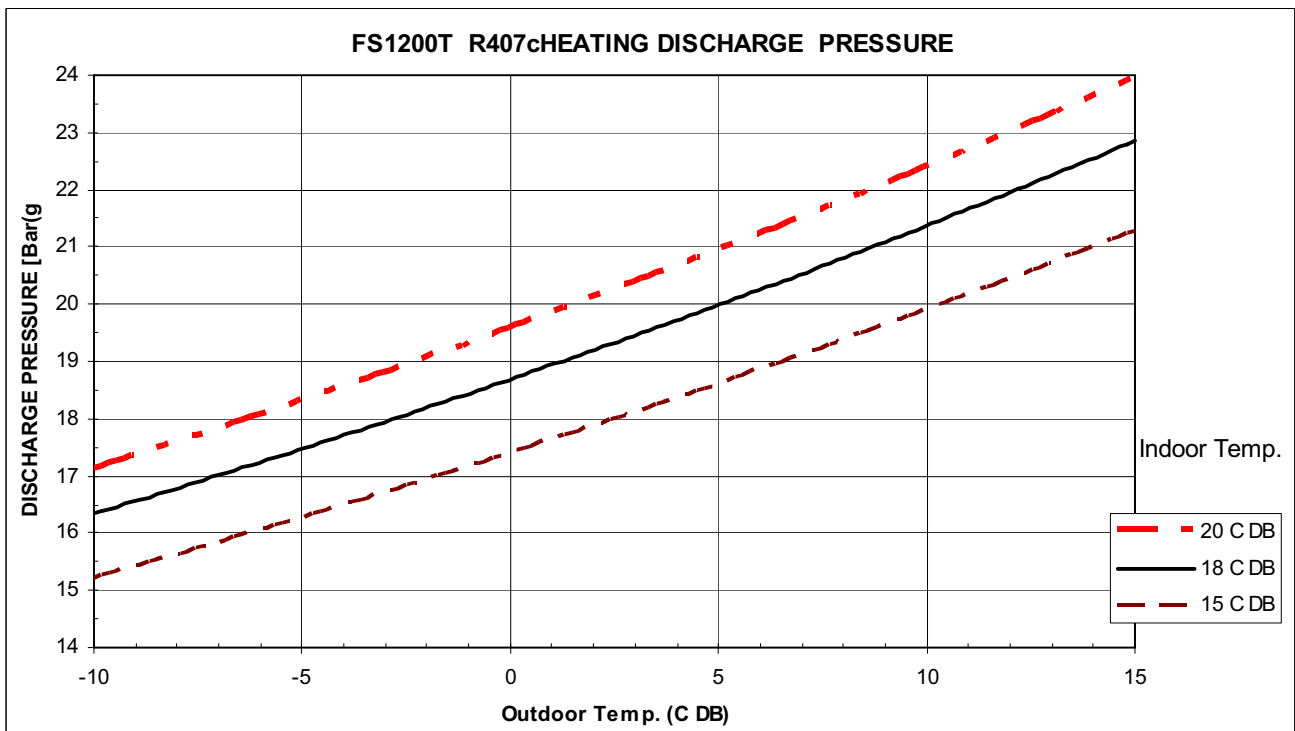
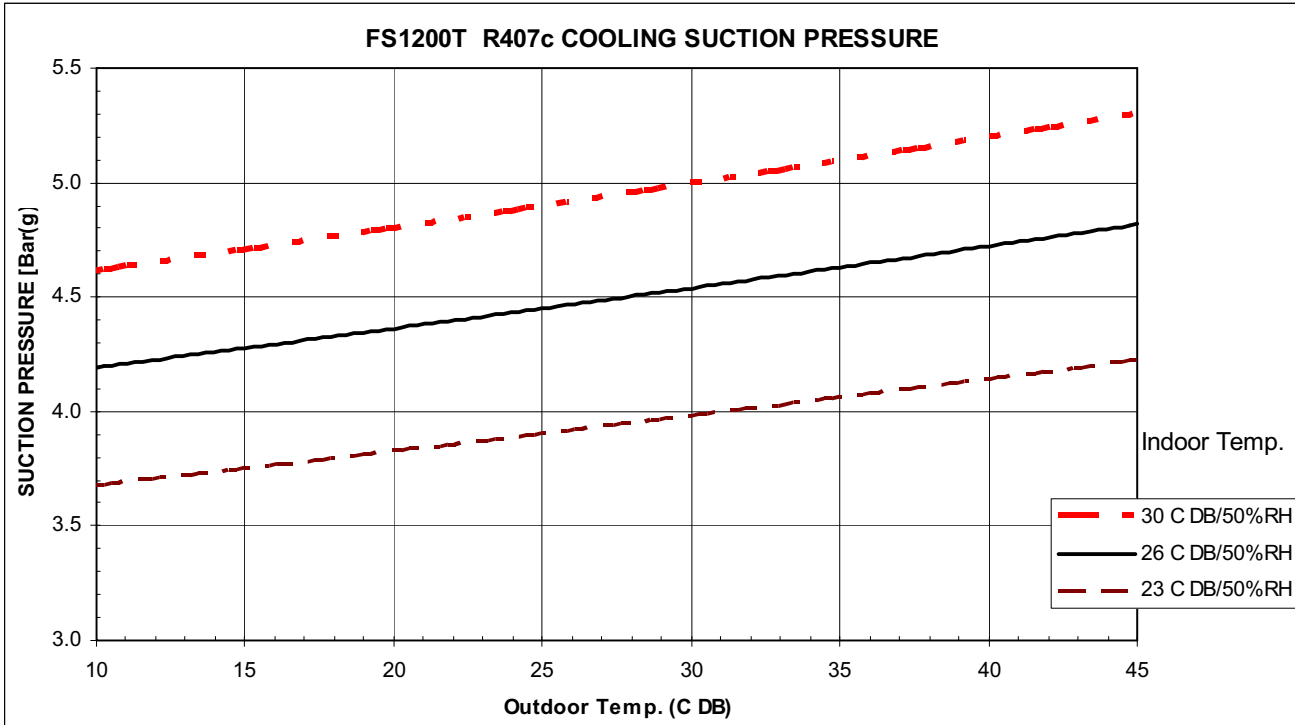
Model: FS KFR 120L



Performance curves

5

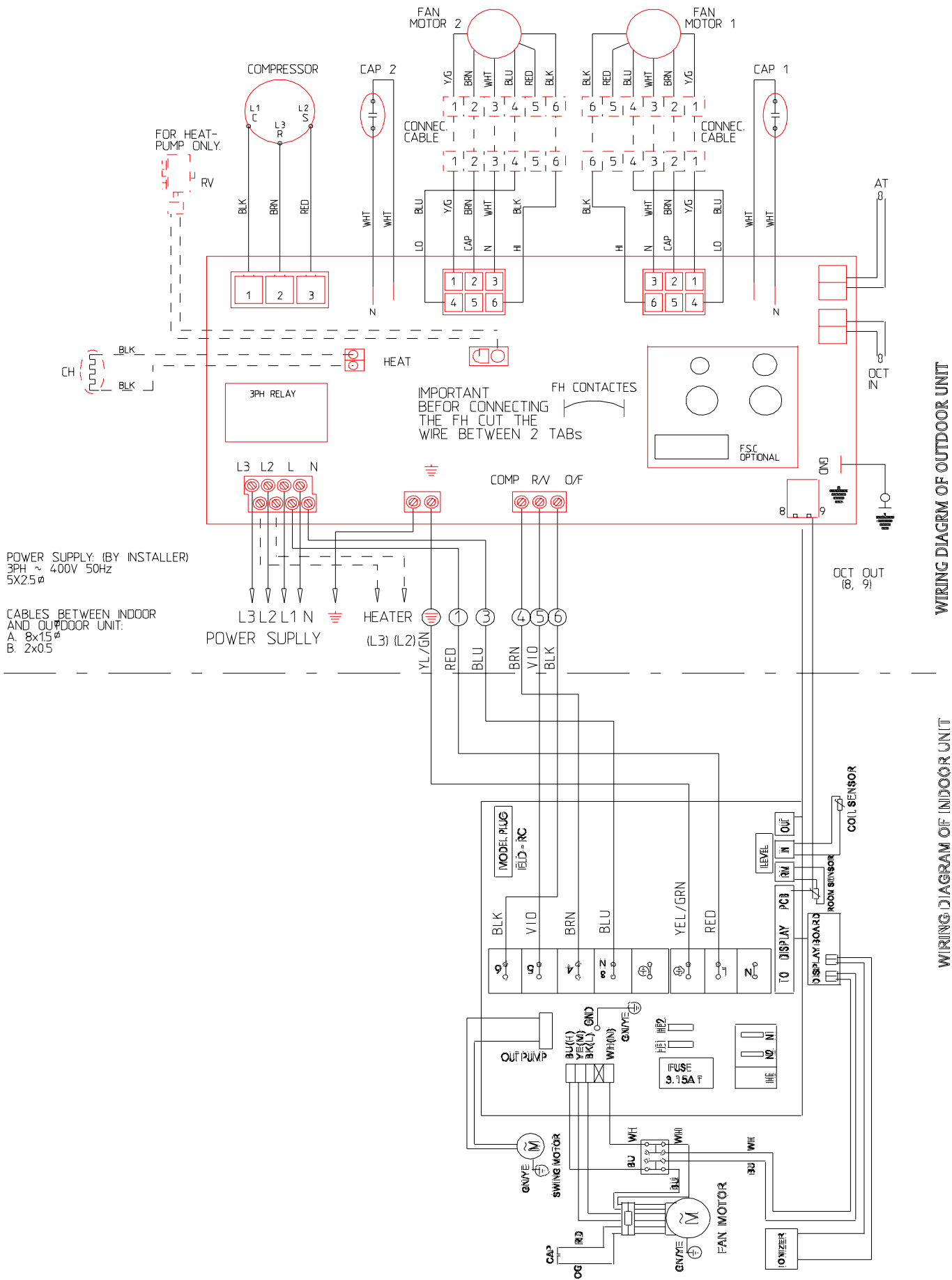
Model: FS KFR 120L



Wiring diagram



Model: FS KFR 120L



POWER SUPPLY: (BY INSTALLER)
3PH ~ 400V 50Hz
5X25#

CABLES BETWEEN INDOOR AND OUTDOOR UNIT:
A. 8x15#
B. 2x0.5

L3 L2 L1 N
POWER SUPPLY

HEATER (L3) (L2)

COMP RV O/F

OCT (8) OUT (9)

WIRING DIAGRAM OF OUTDOOR UNIT

WIRING DIAGRAM OF INDOOR UNIT

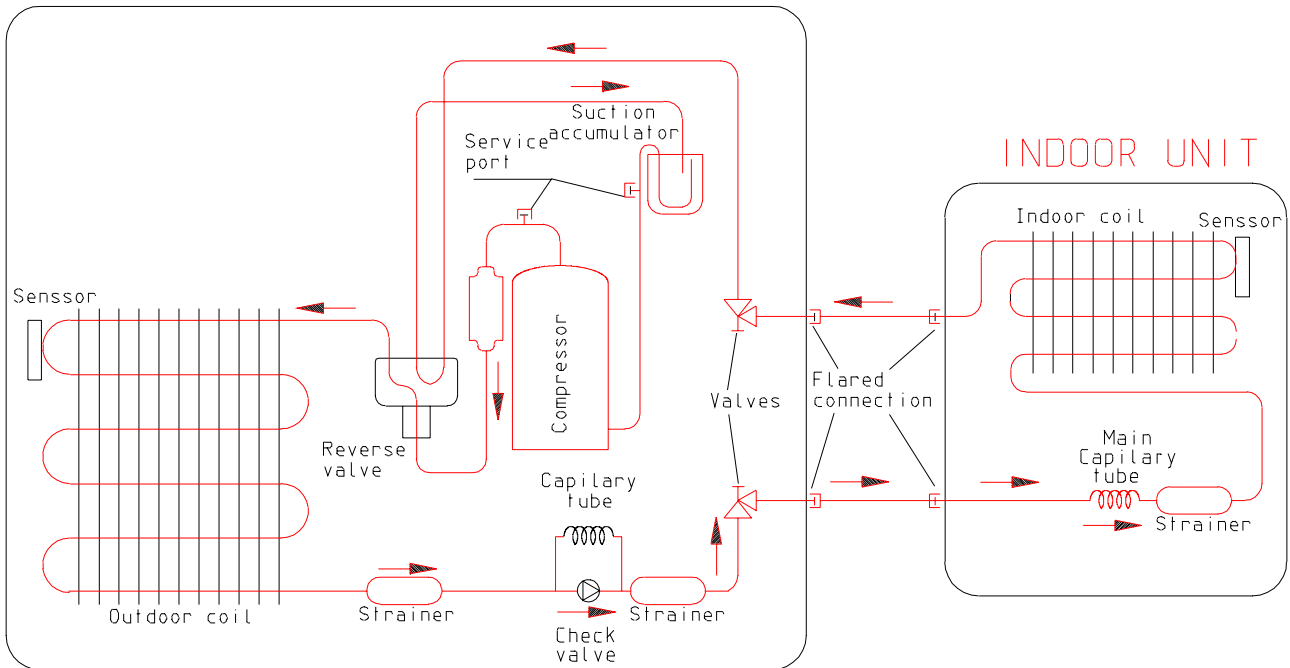
Refrigeration diagram

8

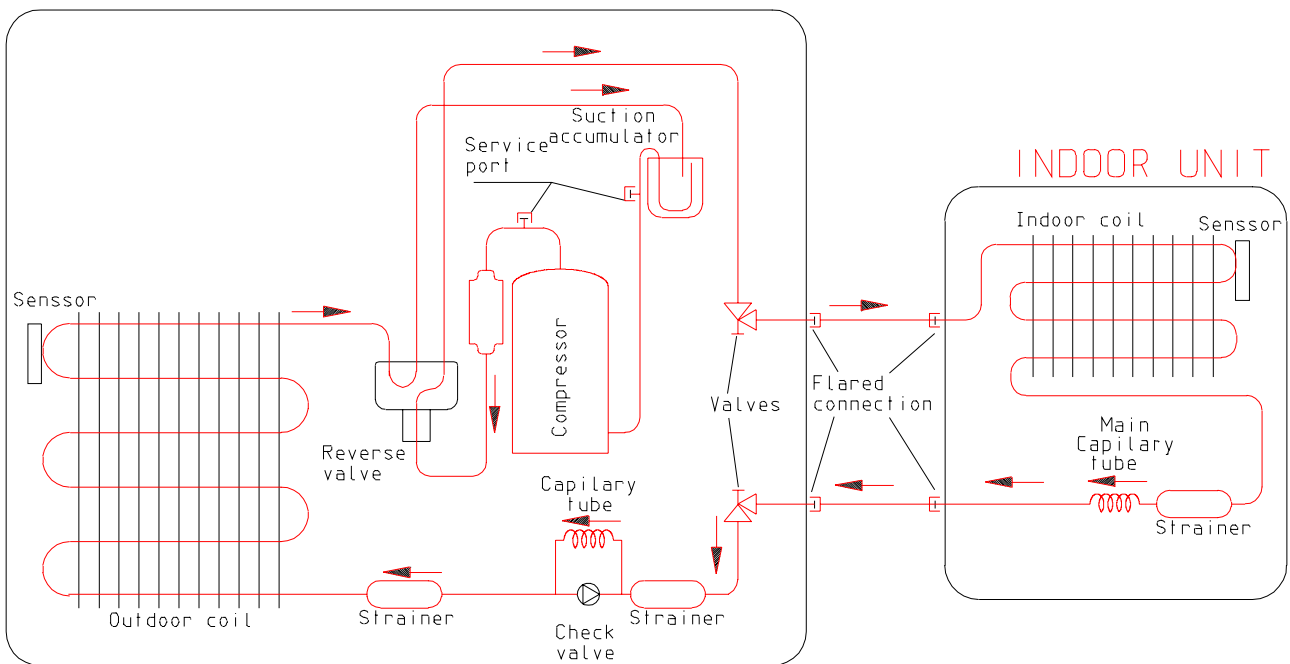
HEAT PUMP MODELS

SERIES: FS KFR 120L

COOLING MODE



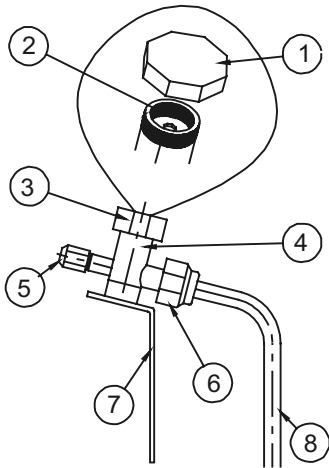
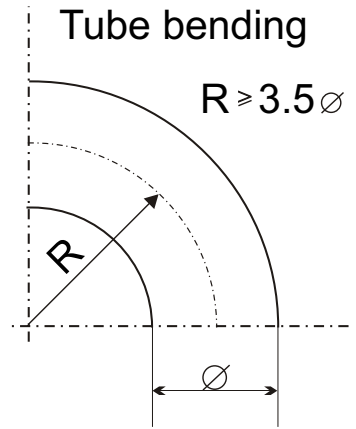
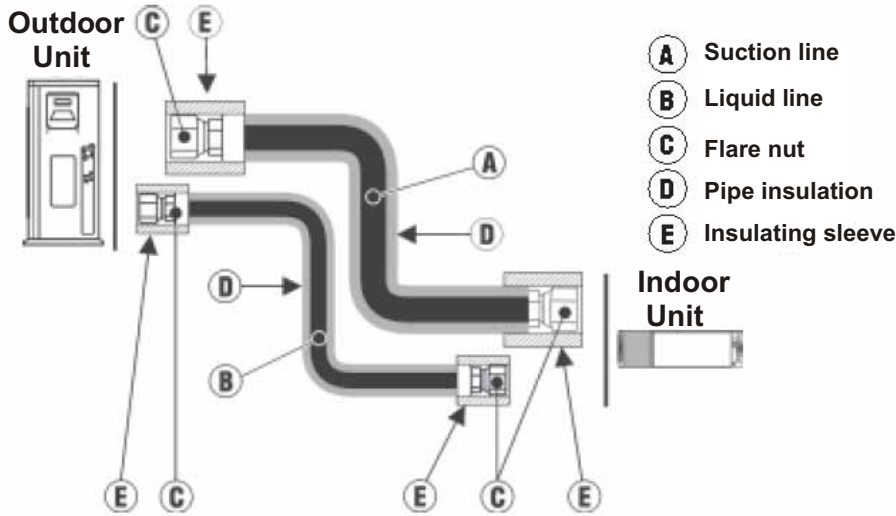
HEATING MODE



/dd/multy/gas_schem/1

Tubing Connections

Model: FS KFR 120L

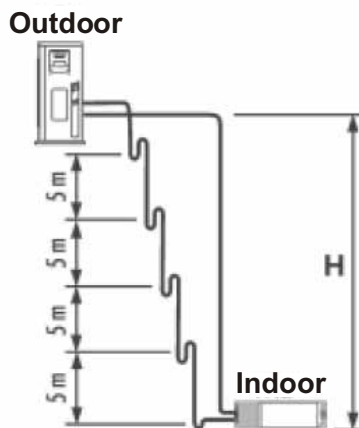


Tube (Inch)	1/4"	3/8"	1/2"	5/8"	3/4"
TORQUE(N.m.)					
FLARE NUTS	11-13	40-45	60-65	70-75	80-85
VALVE CAP	13-20	13-20	18-25	18-25	40-50
SERVICE PORT CAP	11-13	11-13	11-13	11-13	11-13

Tightening Torque Values

1. Valve Protection Cap-end
2. Use Allen Wrench to open/close the Refrigerant Valve
3. Valve Protection Cap
4. Refrigerant Valve
5. Service Port Cap
6. Flare Nut
7. Unit Back Side
8. Copper Tube

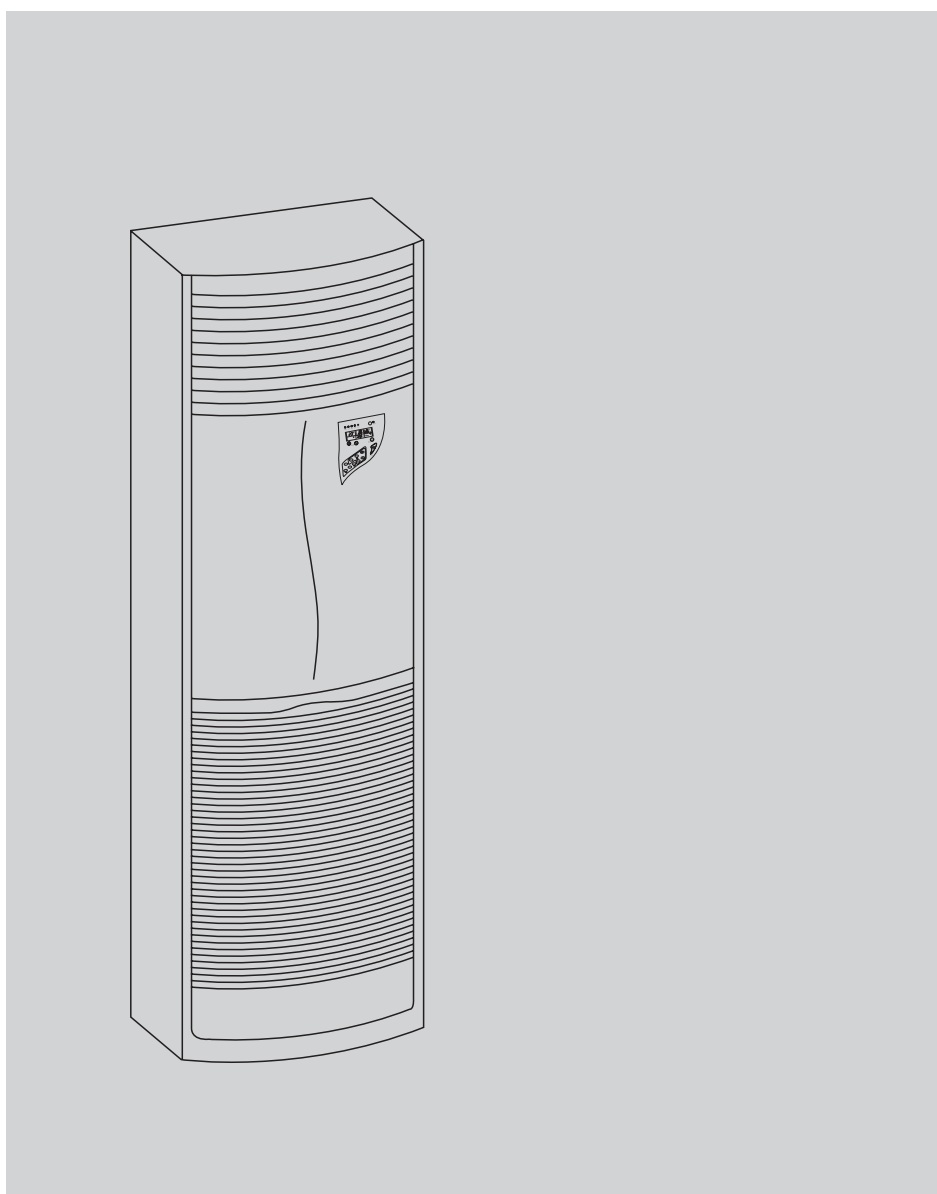
When the outdoor unit is installed above the indoor unit an oil trap is required every 5m along the suction line at the lowest point of the riser. In case the indoor unit is installed above the outdoor no trap is required.



INSTALLATION & OPERATION MANUAL



Free Standing Air Conditioner



Operation Instructions & Installation Manual

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If your air conditioner is for cooling only, please disregard the heating instructions.

Please read these instructions **before** operating the air conditioner.

The change of function parameters and circuit diagram will not be notified; please refer to the nameplate and the circuit diagram on the unit.

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INTRODUCTION

The free Standing air conditioner is designed for various uses:



- Cooling in summer



- Dehumidifying at high humidity conditions.



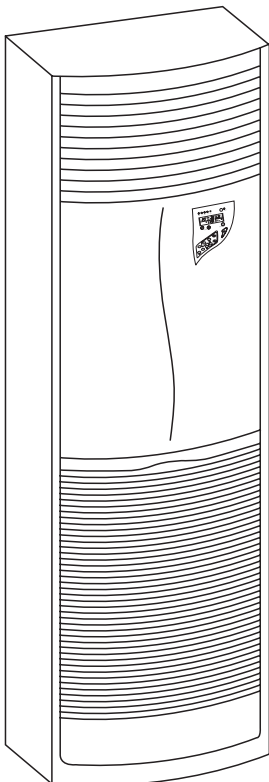
- Heating



- Air Filter



- Ventilation



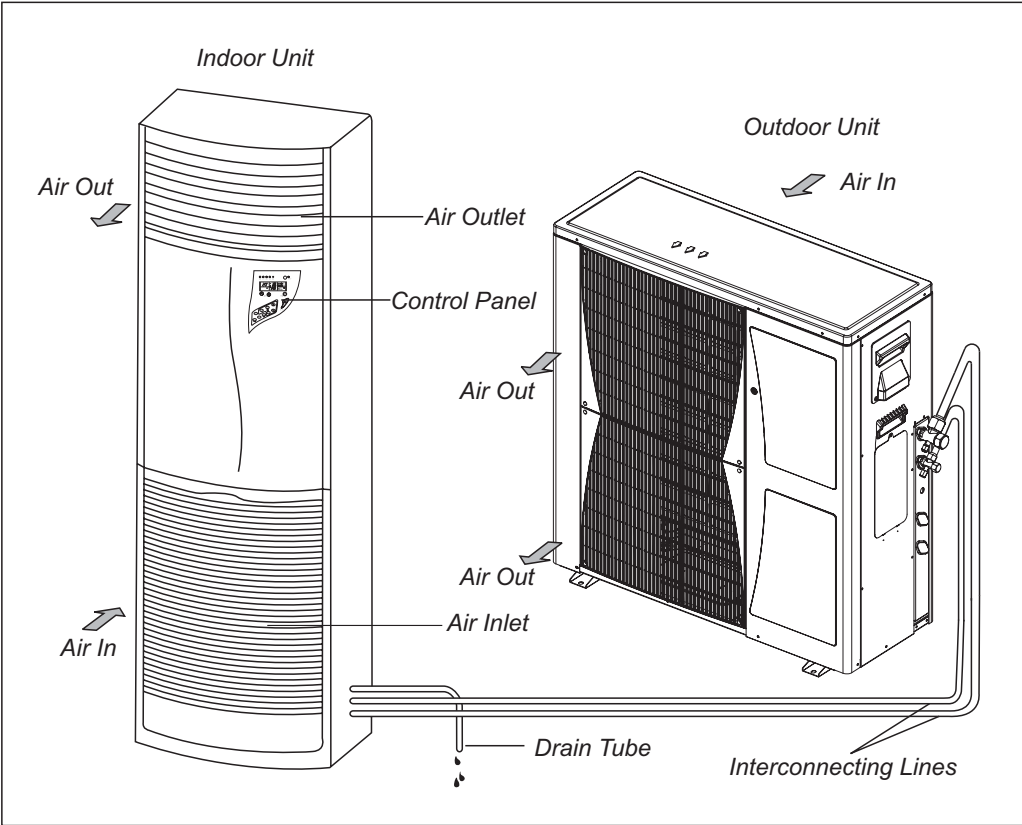
Operating Temperature Range

	Indoor	Outdoor
Cooling	16°C ~ 30°C	10°C ~ 46°C
Heating	16°C ~ 30°C	-10°C ~ 21°C

IMPORTANT NOTICE:

- The air conditioner must be grounded to protect against electrical shock.
- Installation of the air conditioner must be performed by an experienced air conditioning installer, observing good refrigeration practice.
- Electrical connections and power cord replacement should only be made by authorized electricians and in accordance with electrical regulations and local codes.
- Failure to comply with the manufacturer's installation and operation instructions could affect the performance of the air conditioner and the validity of the warranty.

SYSTEM DESCRIPTION



OPERATION MODES, FUNCTIONS AND FEATURES

This series of conditioners have the following functions:



COOL

Cools, dehumidifies and filters the room air. Maintains desired room temperature.



HEAT

Heats and filters the room air. Maintains the desired room temperature.



AUTO

Automatically switches from COOLING to HEATING or from HEATING to COOLING, maintaining the desired temperature according to the room conditions.



DRY

Decreases humidity of atmosphere and maintains the room temperature. It is suitable to use in dankish and rainy season.



FAN

Recirculates and filters the room air. Maintains constant air movement in the room.



AUTO FAN

The air conditioner automatically selects the fan speed according to the room temperature. At the start, the unit operates at high fan speed. As the room air approaches to the set temperature, the fan switches automatically to a lower speed for quieter operation.

HOT KEEP

In HEATING and in AUTO FAN, the fan will be turned off when the compressor is not in operation and will not be restarted, unless the indoor coil reaches adequate temperature. This HOT KEEP feature prevents uncomfortable cold air drafts. Use of AUTO FAN is, therefore, recommended when the air conditioner is in HEATING mode.



TIMER

Real time control and display, automatically turns the air conditioner ON and OFF according to the time of day setting, ensuring comfort conditions before returning home, without wasting electricity. It turns the air conditioner off automatically when sleeping.



SLEEP

Designed to create comfortable sleeping conditions. When in cooling mode, the temperature rises one-degree centigrade after each consecutive hour, up to three hours, from the start of the mode. The rising temperature prevents the feeling of over-cooling while sleeping (when your body is at rest). In heating mode the reverse occurs; the air conditioner lowers its temperature one-degree every hour. When in sleeping mode, air conditioner will be automatically turned off after operating for seven hours. The result is a more comfortable and invigorating sleep, which leaves you feeling fresh and energetic on the next morning.

OPERATION MODES, FUNCTIONS AND FEATURES



FILTER INDICATOR

Filter indicator on the indoor unit display is turned on when the filter requires cleaning. After cleaning and reinstalling the filter, the system should be reset.

3-MIN. DELAYED RNU

The compressor is protected by a three-minute delayed restart.

MEMORY

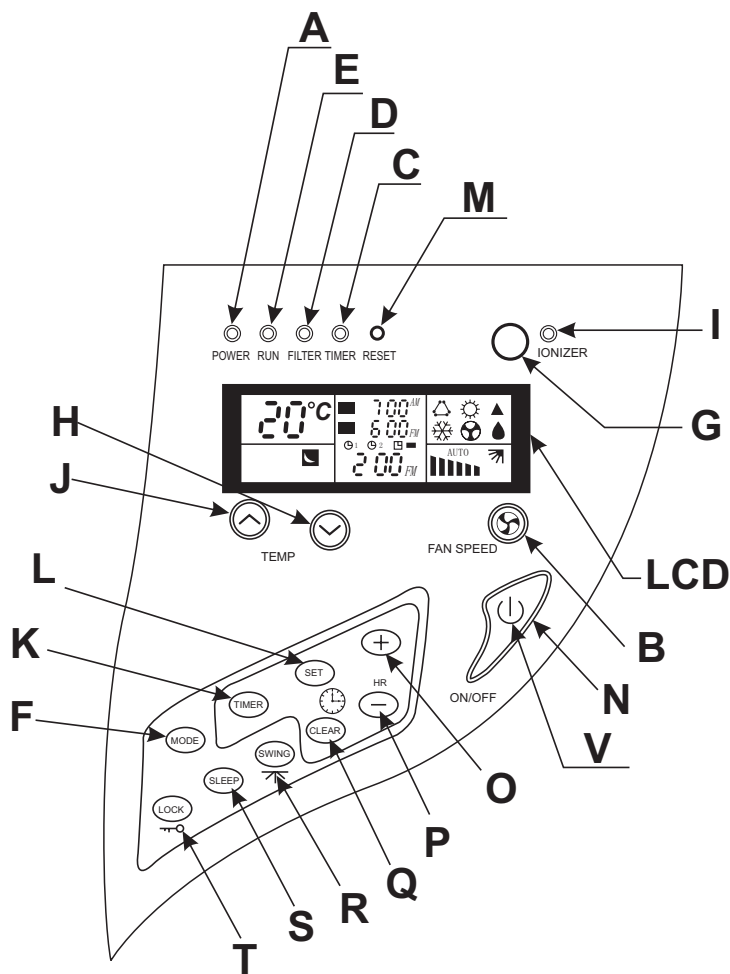
The microprocessor retains the last data entry whether or not the unit is plugged in. Therefore, when the unit restarts after a power disruption or failure, it will resume operating in the same mode as before the power was disrupted.



LOCK

Freezes the last operation setting on the remote control. When LOCK is activated, the remote control will not be able to control the air-conditioner.

INDICATOR LIGHTS AND CONTROL BUTTONS ON THE UNIT



M. Reset Button

After cleaning filter, press this button to reset filter function. The filter indicator goes out.

"N" & "V" Power Switch Button and Indicator

Press this button to set power on or off. Indicator lights up when power is connected. Indicator goes out when power is disconnected.

"O"/"Q"/"P" Clock Set Button

Press "O" or "P" button to decide clock time up or down. Press "Q" button to cancel present clock set.

R. Air Swing Button

Press this button to decide if vertical air swing will be working or not.

S. Sleep Button

Decide whether or not to proceed sleep operation mode.

T. Self-Lock Button

All set modes or status are locked after pressing this button. Cancellation of self-lock button is necessary when adjusting set status, otherwise it cannot be proceeded.

A. Stand-by Indicator

Lights up when the air conditioner is connected to power.

B. Fan Speed Button: To select Low Fan / Mid Fan / High Fan / Auto Fan.

Four modes for option

C. Timer Indicator

Lights up when the unit is proceeding timer mode.

D. Filter Indicator

Lights up to remind you that the filter needs to be cleaned.

E. Operation Indicator

Lights up when the conditioner is in operation.

F. Mode

By pressing the button to select Cool/Heat/Dry/Auto Fan/Auto mode.

G. Ionizer Button

When pressing this button, "I" lights up indicating that ionizer is working ; "I" indicator does not light up indicating that ionizer is not working.

H. Temperature Button

Pressing the button to decrease the set room temperature.

I. Ionizer Indicator

Lights up when ionizer is working. Goes out when ionizer is not working.

J. Temperature Button

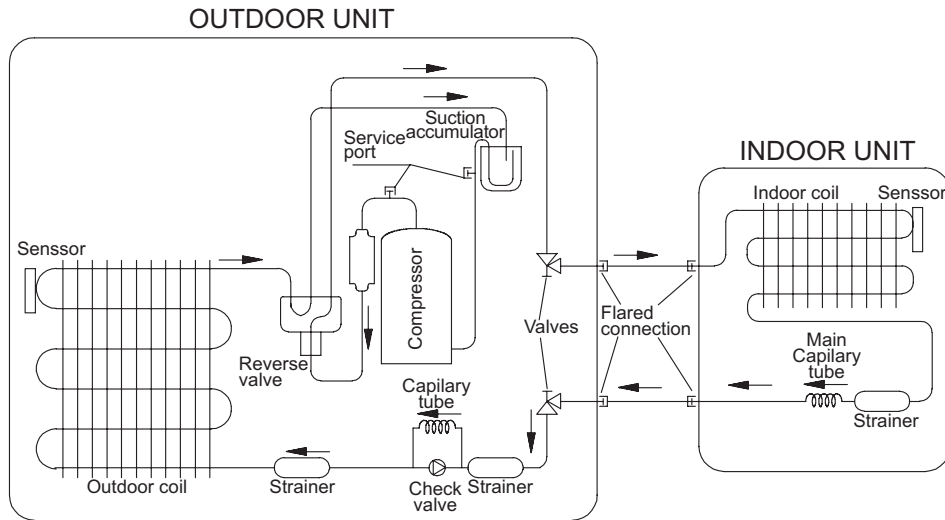
Pressing the button to increase the set room temperature.

L/K. Timer Button

When pressing the button, to set operation time longer or shorter by pressing "L" button.

OPERATIONAL PRINCIPLE OF THE UNIT

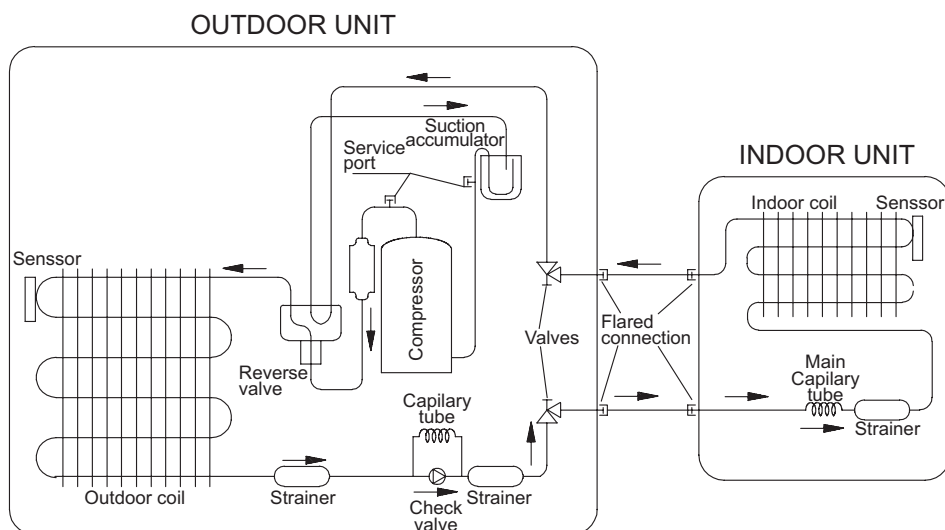
HEATING MODE



Operational Principle Chart for Free Standing Room Air Conditioner with Heat Pump

Both outdoor unit and indoor unit start operation after connected to power. When operating in cooling mode, low-pressure refrigerant vapour from evaporator of indoor unit is absorbed into compressor and become high-pressure vapour through compressing; after entering condenser of outdoor unit, it proceeds heat exchange with outdoor air through axial fan to become refrigerant liquid and enter evaporator after decreasing pressure and temperature by capillary throttle; then to proceed heat exchange with indoor air needing to be conditioned through centrifugal fan of indoor unit and become low-pressure refrigerant vapour; in such way to circulate in circles to reach the purpose of cooling. When operating in heating mode, by action of selector valve on four-way electric valve, refrigerant proceeds circulation against cooling procedures. Refrigerant gives out heat through room heat exchanger and absorbs heat through outdoor heat exchanger to operate in heating circles through heat pump to reach the purpose of heating.

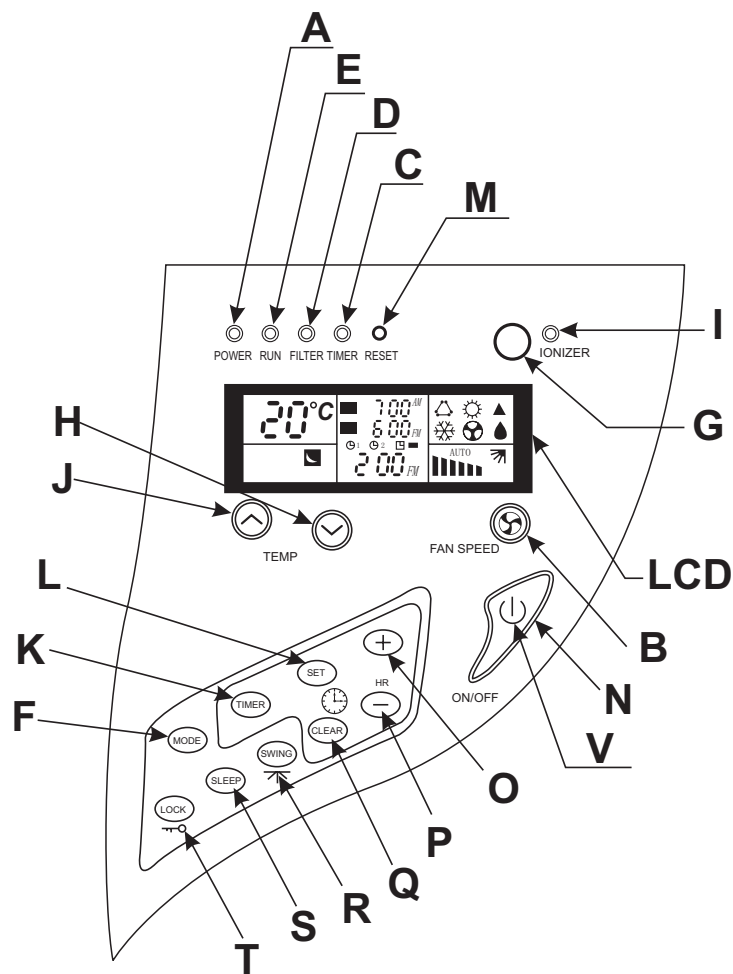
COOLING MODE



Operational Principle Chart for Free Standing Cooling Only Room Air Conditioner

Both outdoor unit and indoor unit start operation after connected to power. Low-pressure refrigerant vapour from heat exchanger of indoor unit is absorbed into compressor and become high-pressure vapour through compressing; after entering heat exchanger of outdoor unit, it proceeds heat exchange with outdoor air to become refrigerant liquid and enter heat exchanger of indoor unit after decreasing pressure and temperature by capillary throttle; then to proceed heat exchange with indoor air needing to be conditioned and become low-pressure refrigerant vapour; in such way to circulate in circles and reach the purpose of cooling.

OPERATION PROCEDURE (Operations on the Unit)



Turning on the Air Conditioner

1. Connect the unit to the power supply, indicator A lights up, indicating that the unit is ready for operation.
2. Press N (on/off) button, the unit now is in operation and indicator E lights up.
3. When the unit is turned off, the unit will save the last setting. When it is turned on again, the unit will automatically start and operate in the last set mode.

Ventilating Operation

Select the ventilating mode by pressing F(mode selection) button.

Select desired fan speed by pressing B (fan speed) button.

Different fan speed will be displayed on display panel after each pressing.

Below are four modes for fan speed : low fan, middle fan, high fan and auto fan

Cooling Operation

1. Select the cooling mode by pressing F (mode selection) button.
2. Press B (fan speed) button to select desired fan speed or auto fan.
3. Press H or J button to set appropriate room temperature.

OPERATION PROCEDURE

Cooling Operation with Auto Fan Mode

This operation starts with the highest airflow in order to lower the room temperature quickly. Then it will automatically switch to a lower airflow to maintain the set temperature.

Heating Operation

1. Select "Heating" by pressing F (mode selection) button.
 2. Press B (fan speed) button to select desired fan speed or auto fan.
 3. Press H or J button to set appropriate room temperature.
-

Heating Operation with Auto Fan Mode

This operation starts with the highest airflow in order to raise the room temperature quickly. Then it will automatically switch to a lower airflow to maintain the selected temperature. Heating operation with auto fan mode will automatically provide you a cold air preventive function. The fan will be turned off when temperature of indoor heat exchanger is very low, preventing uncomfortable cold air drafts.

Dry Operation

Select the Dry mode by pressing mode button (F). Select the suitable temperature setting. While in Dry mode, the air conditioner will operate at low fan speed, regardless of the fan setting on the Liquid Crystal Display (LCD) operation display. The fan will operate intermittently to prevent over cooling.

Temperature Selecting

Press TEMP buttons (H) or (J) to change the temperature setting on the Liquid Crystal Display (LCD) of the display panel. The temperature setting is shown in centigrade degrees. The number indicates room temperature.

OPERATION PROCEDURE

Sleep Function

Press Sleep button (S) to select the Sleep function. After Sleep function is activated, air conditioner will be automatically turned off after 7 hours. If Timer function is also activated, the air conditioner will be turned on or off according to Timer setting.

Press one of the following buttons to cancel Sleep function:

- ON/OFF button (N)
- SLEEP button (N)

Timer Function

Press Timer button (K) to activate Timer operation. After each pressing Timer button, one of the following four operation modes will be displayed on LCD display. Timer operation mode appears in arrow directions in turn and indicator on the unit will light up when Timer function is in operation.

Note: After a power failure (when the unit in Timer mode), the unit will be automatically turned to stand-by mode and the Timer operation will be cancelled. To resume the use of Timer function, follow the above instructions

Operation Modes of Timer Function

Four operation modes are available:

T1: timing of the first time everyday; T2: timing of the second time everyday; T1wk: timing of Saturday; T2wk timing of Sunday.

T1 and T2 are two everyday timings, representing different time periods. Such time period will be repeated everyday.

T1wk and T2wk are the timing of the weekend. The timer indicator lights up when timer is activated. T1wk is only used for Saturday's timing and is valid only at that day, T2wk is only used for Sunday's timing and is valid only at that day.

The everyday timing will be turned off when operating at the weekend. The WK timer must be activated before every weekend.

1. T1 the first time timing startup and closedown everyday

This mode enable you to set the operation time, refer to figure 1

- A) Press timer button (K) to select T1, T1 blinks.
- B) Press "SET" button (L), "ON" will appear.
- C) Press up and down button (O) & (P) respectively to adjust start time of operation.
- D) Press "SET" button (L) again to activate timing start function, "OFF" will appear at the same time.
- E) Repeat step (c) to set the closedown time.
- F) Press "SET" button (L) to activate timing closedown function. The buzzer will sound and end the timing setting.



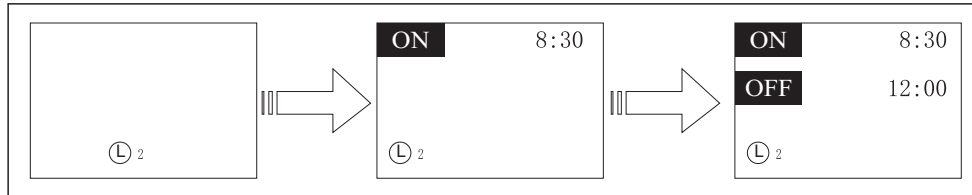
2. T2 the second time timing startup and closedown everyday

This mode enables you to set the operation time, refer to figure 2.

- A) Press timer button (K), T2 will appear and blink.

OPERATION PROCEDURE

- B) Press "SET" button (L), "ON" will appear.
- C) Press up and down button (O) & (P) respectively to adjust start time of operation.
- D) Press "SET" button (L) again to activate timing start function, "OFF" will appear at the same time.
- E) Repeat step (c) to set the closedown time.
- F) Press "SET" button (L) to activate timing closedown function. The buzzer will sound and end the timing setting.



3. T1wk timing of Saturday

This mode enables you to set the operation time, refer to figure 3.

- A) Press timer button (K) to select T1wk, T1wk blinks.
- B) Press "SET" button (L), "ON" will appear.
- C) Press up and down button (O) & (P) respectively to adjust start time of operation.
- D) Press "SET" button (L) again to activate timing start function, "OFF" will appear.
- E) Repeat step (c) to set the closedown time.
- F) Press "SET" button (L) to activate timing closedown function. The buzzer will sound and end the timing setting.



4. T2wk timing of Saturday

This mode enables you to set the operation time, refer to figure 4.

- A) Press timer button (K) to select T2wk, T2wk blinks.
- B) Press "SET" button (L), "ON" will appear.
- C) Press up and down button (O) & (P) respectively to adjust start time of operation.
- D) Press "SET" button (L) again to activate timing start function, "OFF" will appear.
- E) Repeat step (c) to set the closedown time.
- F) Press "SET" button (L) to activate timing closedown function. The buzzer will sound and end the timing setting.



5. Clear

Apply this mode to cancel timer function, press timer button (K) and press clear button (Q) to terminate the timer function.

OPERATION PROCEDURE

Air Direction Control

Automatic Vertical Air Swing

Press button (R) to activate the auto air swing function. Press button (R) again to cancel the function.

Turning Off

Press ON/OFF button (N) to turn off the air conditioner. Indicator (V) on the air conditioner will be turned off. Indicator (A) may stay lit, indicating that the air conditioner is in stand-by mode.

Lock Function

Press Lock button (T) to lock the last operation mode. All the function buttons will be inoperative, including ON/OFF button. Press Lock button (T) again to release locked position.

PROTECTION MODES AND INSTRUCTIONS FOR SERVICE ELECTRIC HEATER

This series of conditioners include a great variety of automatic protection modes, some of the protection modes are listed below:

Mode	Operation Conditions	Protection from	Controlled remedy
Cooling and Dry	Low outdoor temperature	Evaporator freezing up	Stops outdoor fan and compressor when approaching freezing conditions. Resumes operation automatically.
	High outdoor temperature (only for the unit with heat pump)	Condenser overheating	Stops compressor automatically when approaching over heating temperature. Resumes operation automatically.
Heating	Low outdoor temperature	Condenser freezing up	Reverses operation from heating to cooling for short periods to defrost the condenser.
	High indoor or outdoor temperature	Evaporator overheating	Stops outdoor fan and compressor automatically when evaporator approaching over heating temperature. Resumes operation automatically.

Instructions for Service Electric Heater

No.	Description	Specification	Remark
1	Electric Heating Tube	600W/110V	4
2	Temperature-limited unit	65°C	2
3	Fuse	99 °C/10A	2

If any damages happened on electric heating tube, temperature-limited unit and fuse, please get professional technicians to replace with adoption of parts provided by the company.

Heater works only in heating mode when indoor coil temperature is lower than 45°C.

MAINTENANCE AND CARE

Cleaning the Air Conditioner

1. Cut power off before cleaning.

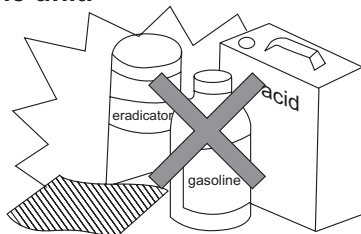
For the sake of safety, the unit must be turned off and disconnected from power supply before cleaning the equipment to avoid electricity shock accident.

2. A dry soft cloth must be used for cleaning body case

When body case is very dirty, please soak the cloth with warm water below 40°C and gently wipe off the dirty part after wringing the cloth dry.

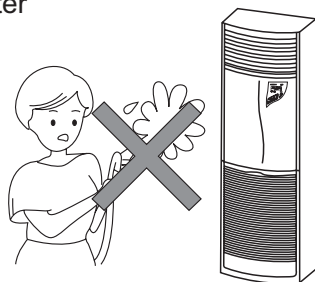


3. Avoid using organic solvent like acid and alkali to clean the unit.

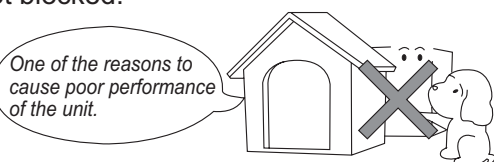


4. Avoid rinsing indoor unit with water

There are microcomputer elements and wiring pad in the indoor unit, it absolutely can not be wet and water soaked.



Make sure air intake and output on the outdoor unit are not blocked.

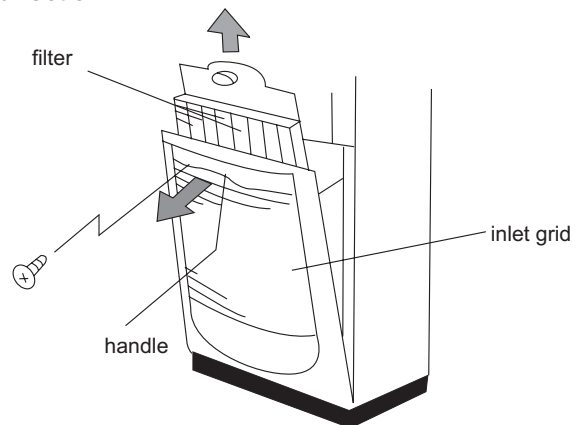


Cleaning Air Filter

Whether or not to clean the air filter depends on the instruction of the filter indicator.

Steps of removing the filter

- Please make sure that the unit has terminated operation.
- Please remove the fix bolt on inlet grid. Pull handle out in arrow direction to open the inlet grid.
- Air filter is installed on internal side of inlet grid and can be removed by pulling out in arrow direction.



Cleaning Method

- Please gently flick the filter or clean the filter with electric dust collector. When there are too much scales on the filter, to clean with warm water modulated with neutral detergent and then clean the detergent on the filter. Dry the filter after cleaning and then restore its original position and install.

Note:

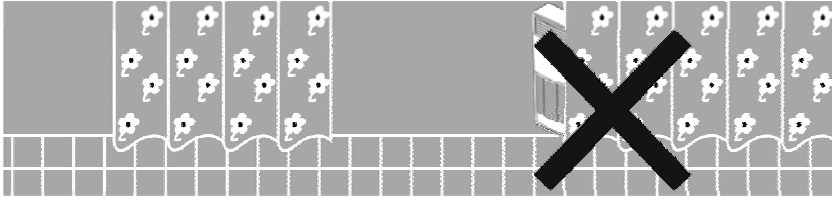
- Do not put the air filter under direct sun or dry it beside stove, which will cause distortion.
- Distortion may happen to filter when being cleaned with warm water over 50 °C

OPERATING TIPS

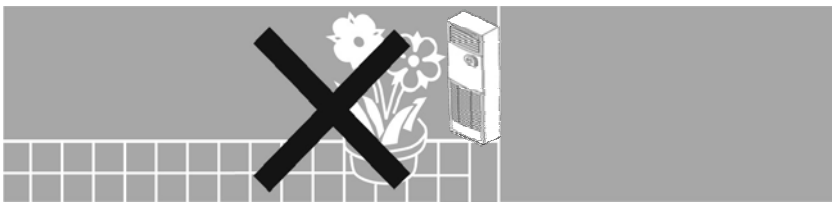
- Set a suitable room temperature; excessively low room temperature is not good for your health and wastes electricity. Avoid frequent setting of the temperature.
- During cooling, avoid direct sun into the room and keep curtains closed. Close doors and windows to keep the cool air in the room.
- Avoid using heater while the air conditioner is in cooling mode.
- Please make sure air lead blades on the unit are in appropriate angle: in cooling mode, air should flow in horizontal direction, in heating mode in vertical downward direction.
- Keep room temperature evenly through adjusting vertical air blades.
- During prolonged operation, ventilate the room by opening windows.
- After power failure, microprocessor will keep memory. Operation of the unit will be resumed in the last mode of operation once start again.
- After turning on, allow more than 3 minutes for cooling, heating or dry operation to start.
- When dry mode is used, make sure that the room temperature is between 20 to 27°C. When used out of this range, the unit may protect itself and become inoperative.
- If the conditioner is used for a prolonged time in high humidity (relative humidity is above 78%) environment, moisture may form on the air outlets and drip down.

PREVENTIVE MEASURES

- Do not block up or plug up inlets or outlets of air conditioner.



- Do not put any obstacles in the outlets of indoor unit or outdoor unit.



- Do not splash water on air conditioner.

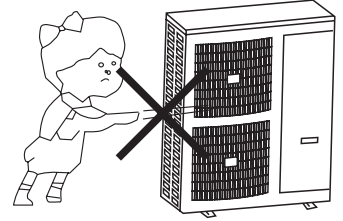


There may have "buzz" when air conditioner is in operation or just turned off, which is produced by refrigerant circling within air conditioner.

PREVENTIVE MEASURES

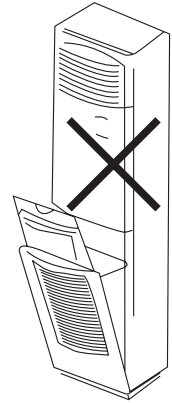
- **Avoid inserting sticks and other objects into suction entrance and blowing outlet.**

Accident may occur when touching rotating fan or electrical parts.



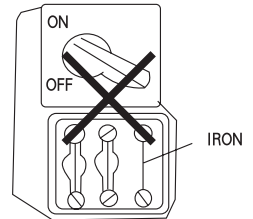
- **During operation, please do not open inlet grid of indoor unit.**

inlet grid can only be opened after making sure the air conditioner is turned off. Otherwise electric shock and injuries may be caused.

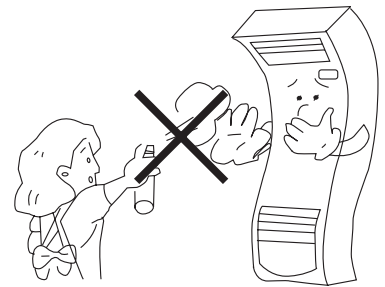


- **Voltage, fuse and electric breaker with rated capacity must be used.**

Avoid using iron strings in place of fuse. Or breakdown may be caused or occurrence of fire disaster.



- **Avoid sprayed by pesticides or flammable gas.**



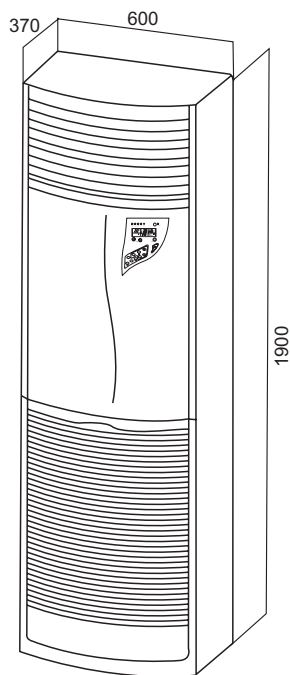
BEFORE CALLING FOR SERVICE

Before calling for service, please check the following malfunctions and correct it as needed.

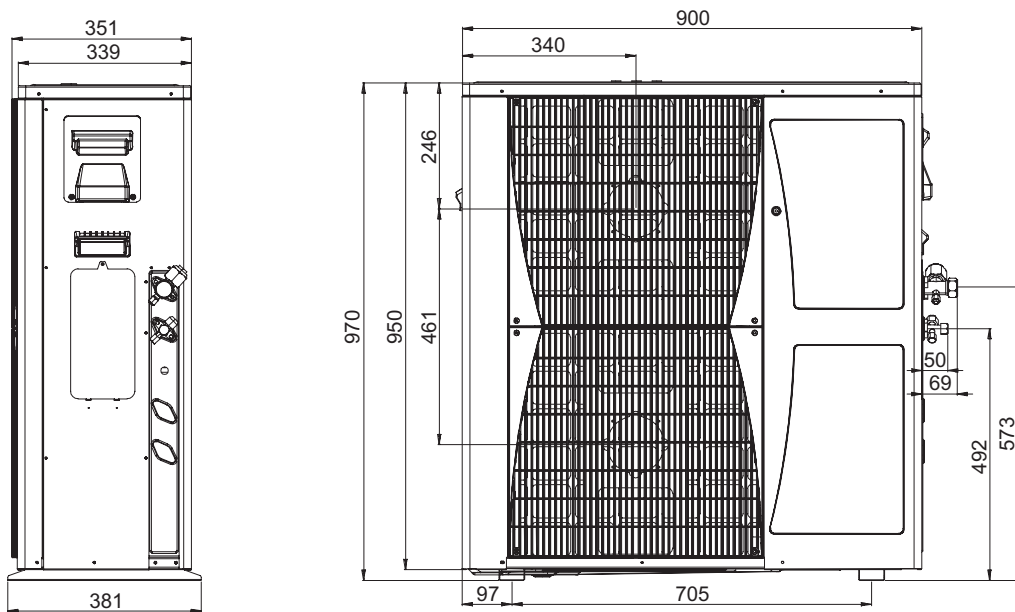
Problem	Cause	Remedy
<ul style="list-style-type: none"> • Unit does not operate. Operation indicator does not light up. 	<ul style="list-style-type: none"> <input type="checkbox"/> Unit not connected to power <input type="checkbox"/> Power failure 	<ul style="list-style-type: none"> ■ Insert the plug to power supply. ■ Check main fuse.
<ul style="list-style-type: none"> • Air does not blow out from indoor unit. 	<ul style="list-style-type: none"> <input type="checkbox"/> Defrost protection mode is activated. <input type="checkbox"/> Unit is in Auto Fan mode. <input type="checkbox"/> Over cooling in Dry mode. 	<ul style="list-style-type: none"> ■ Normal operation in heating mode. ■ Normal operation in dry mode.
<ul style="list-style-type: none"> • Cooling, dry or heating will not start immediately. 	<ul style="list-style-type: none"> <input type="checkbox"/> 3min. delay start. 	<ul style="list-style-type: none"> ■ Normal operation in these modes.
<ul style="list-style-type: none"> • Unit functions but is not up to its performance. 	<ul style="list-style-type: none"> <input type="checkbox"/> Improper temperature setting. <input type="checkbox"/> Unit capacity is insufficient for load or room size. 	<ul style="list-style-type: none"> ■ Reset temperature. ■ Consult service center.
<ul style="list-style-type: none"> • Filter indicator lights up 	<ul style="list-style-type: none"> <input type="checkbox"/> Air filter needs to be cleaned. 	<ul style="list-style-type: none"> ■ Clean filter and reinstall, press reset button to close indicator.
<ul style="list-style-type: none"> • When compressor is in operation, noise and shock is great, running current is less than the corresponding current on the nameplate, suction pressure doesn't fall and exhaust pressure doesn't rise. • Compressor doesn't work while indoor motor and outdoor motor are still working. • The antiphase indicator doesn't light up. 	<ul style="list-style-type: none"> <input type="checkbox"/> Antiphase 	<ul style="list-style-type: none"> ■ Cut off the power immediately. Adjust the phase sequence, exchange the random two poles of the three external line L1/L2/L3 on terminal of the power, or exchange random two poles of line 2, 4, 6 on the AV contactor directly until the antiphase indicator lights up.

OUTLINE DIMENSIONS FS 1200

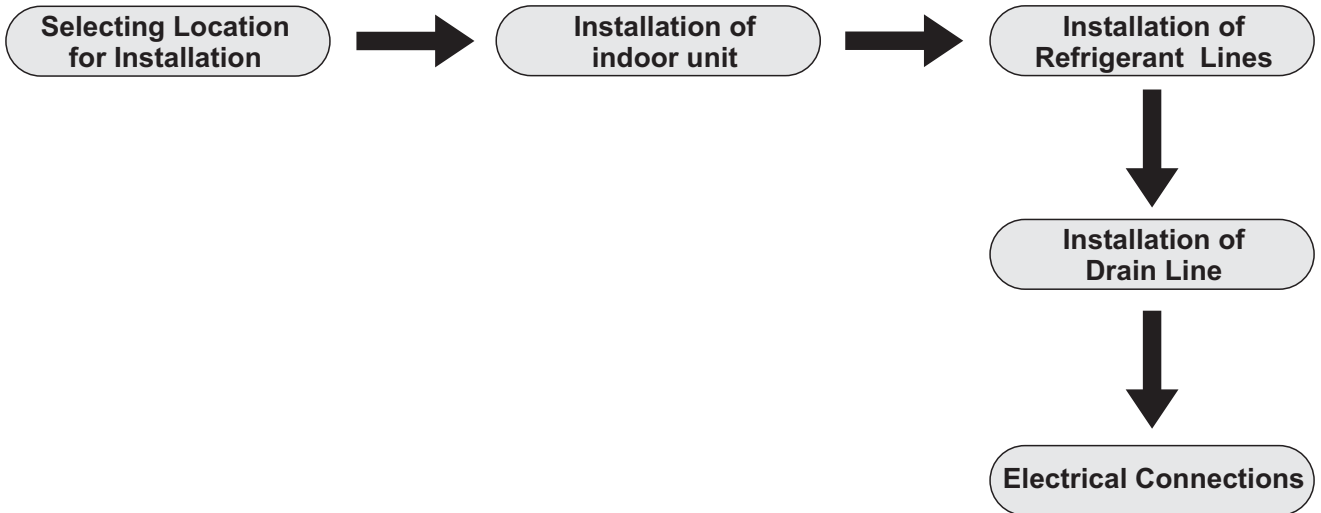
INDOOR UNIT
FC 1200



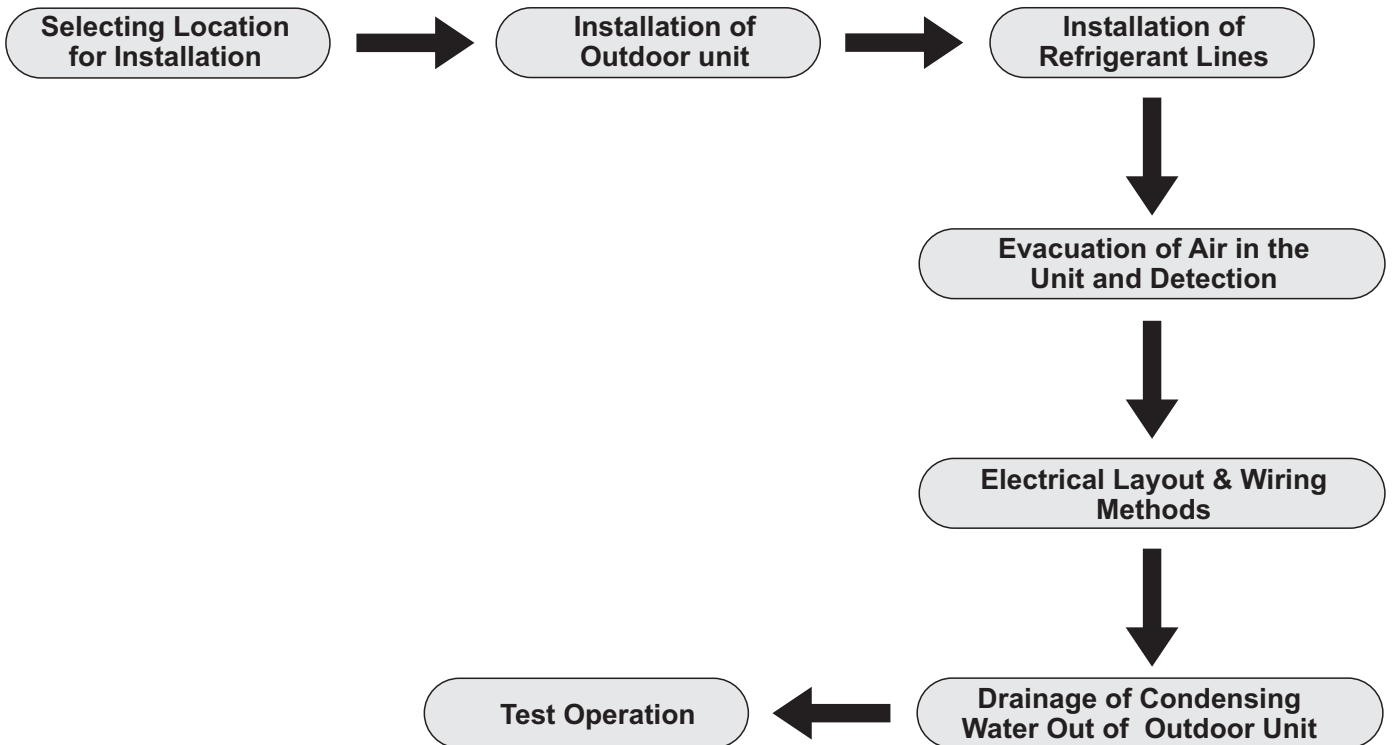
OUTDOOR UNIT
OU 10 RC



1. Installation Process Chart for Indoor Unit



2. Installation Process Chart for Outdoor Unit

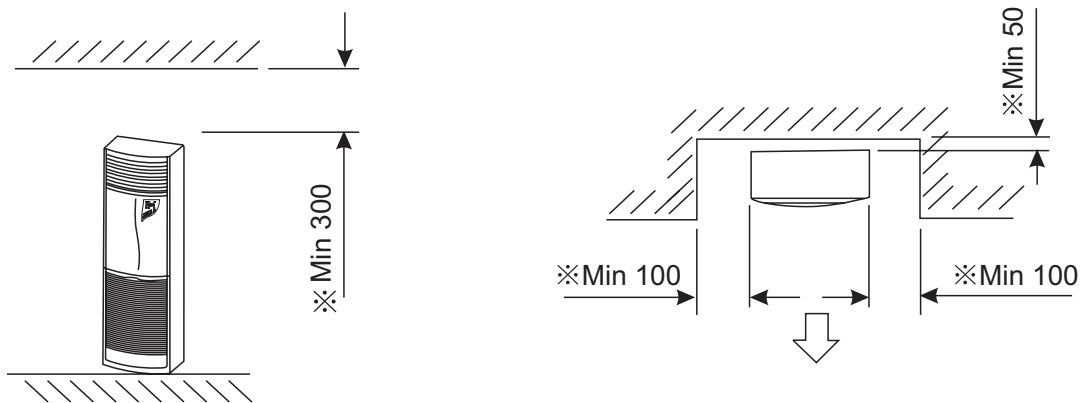


- To be located at a place that the air blown-out can reach all room corners.
- Avoid location that could be influenced by outdoor air.
- Avoid location with obstructions interfering free flow of air blowing out and air intake.
- Avoid places with oily mist and vapors.
- Avoid location that may produce, inflow, and hold and leak flammable gas.
- Avoid installing near the equipment that may produce high frequency (such as high frequency electric welder).
- Please do not set up fire alarm at air outlet.
(When in heating mode, fire alarm may produce wrong actions because of the warm air.)
- Avoid location using special sprayer (sulfur type) frequently.

1.Installed on leveled and firm floor.

2.Space for installation and service.

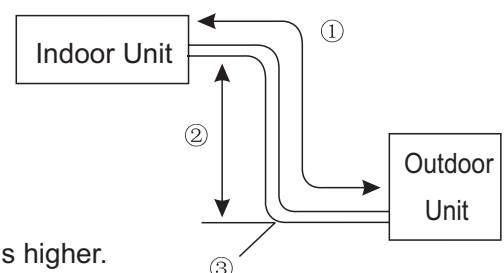
(Unit:mm)



- In consideration of easy and safe operation on installation, make sure there are enough spaces between the unit and wall .
- Dimension which marked with ※sign ,floor and wall must fit the fireproof requirement.

3.As for height difference between indoor unit and outdoor unit, length of refrigerant tube and quantities of bending tubes, please check if they are within the limits.

1. Length of tube (single way)	2. Height difference	3. Quantities of bending tubes
Max. 40m.	Max. 20 m	Max. 10 PCS.

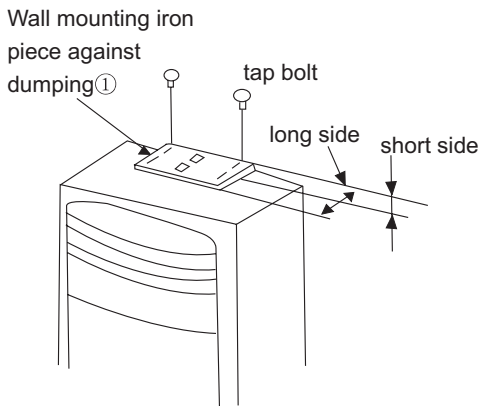


- It makes no difference which one of indoor unit or outdoor unit is higher.

1.Measures preventing dumping

"Wall mounting iron piece against dumping is necessary to prevent dumping"

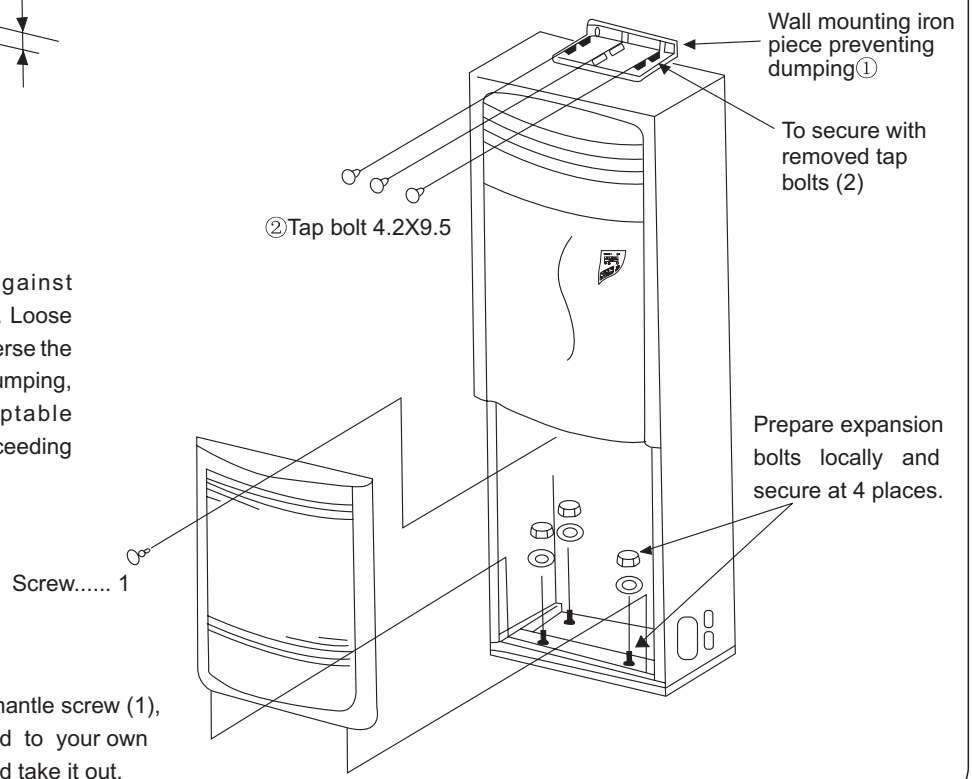
- As the unit is slim and tall, for safe caution, please proceed immediately measures preventing dumping after installation location for the unit is confirmed.



Wall mounting iron piece against dumping ① is set on top of the unit. Loose tap bolt (2), and remove, please reverse the frontback of iron piece preventing dumping, aligning one side with adaptable dimensions to wall surface and proceeding mounting on the other side.

Example of measures preventing dumping

When wall and floor are not made by materials except for wooden plates, please use M8X60 expansion bolt to proceed appropriate mounting.



2.Setting clamp preventing dumping for wall mounting

- According to the location of cordon in the wall (height calculated from the floor), select suitable method from the following figures.
- Cords are not applicable when wall is floored with light steel base, please mount the clamp on supporting or one of pillars. (Please purchase materials like bolts for application here locally).
- When installing air outlet tube on the ceiling of the unit, please do not cap the clamp on the ceiling outlet on the unit and bolt hole for installation of air outlet tube. (e.g., keep long side of clamp directed to wall lateral, which will not produce any capping conditions).

Clamp upwards		Clamp downwards		
Short side toward wall	Long side toward wall	Short side toward wall	Long side toward wall	
<p>Unit: mm</p>	<p>Unit: mm</p>	<p>Unit: mm</p>	<p>Unit: mm</p>	

- Dimensions between the unit and wall indicate adjustable dimensions.
- Upper dimensions calculated from the floor indicate the location for clamp to install bolts (center cordon is within the range where the screws are installed.)

3.Floor mounting

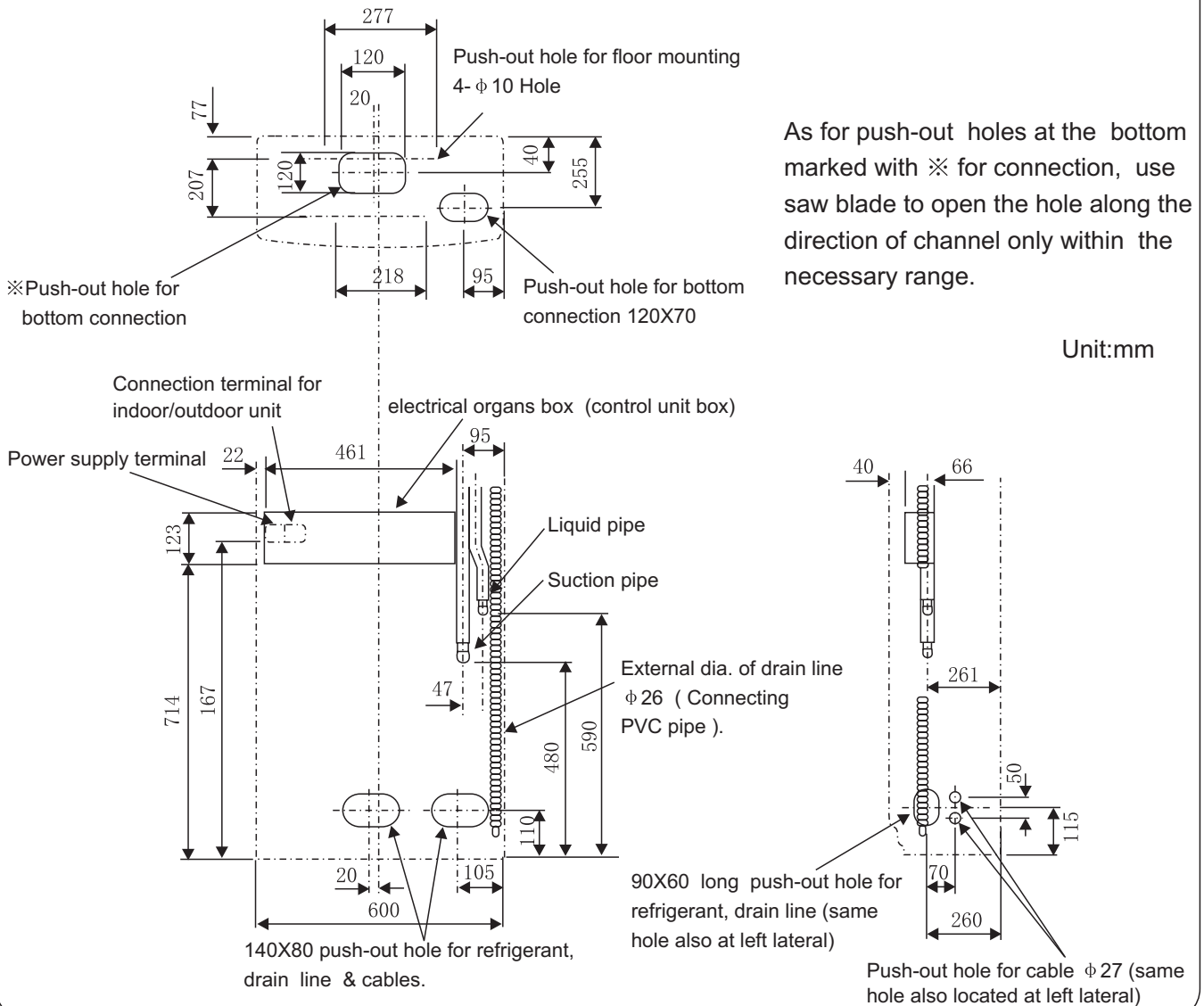
- Remove inlet grid, set the drilling hole on the floor base to fasten ceiling holes, and secure on the floor with expansion bolts. (Please purchase the required accessory such as screw, etc. locally).

- Thermal insulation treatment is required on refrigerant lines and drain line to prevent condensation as both lines have dew to drip down.
- When using pipes purchased from market as refrigerant lines, please wrap and tighten the liquid line and the suction line with thermal insulation materials purchased in the market (thickness of heat resistance insulation material is over 12mm).

Drain line crossing indoor must be wrapped and tightened with thermal insulation material (foam polyethylene, with specific gravity of 0.03 kg/m³ and over 9 mm of thickness) purchased from the market.

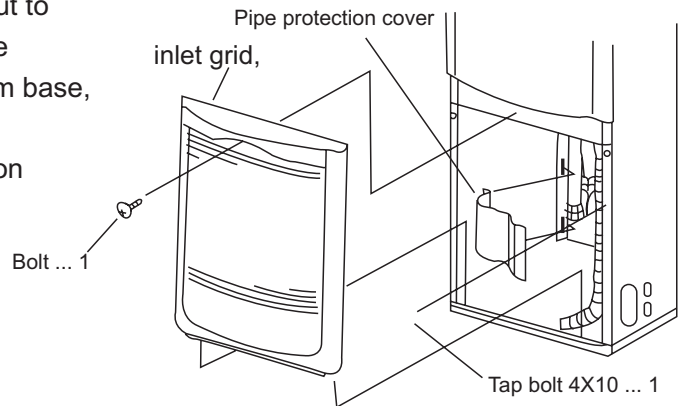
INDOOR UNIT

1. Location of Refrigerant Lines and Drain Line



2.Operation on Tubing Connection

- 1) Remove 1 screw from handle of inlet grid, pull out to your own direction and take inlet grid out. (As the underside of inlet grid, is embedded in the bottom base, please pull upward and take it out.)
- 2) Take down tap bolt (1) for securing pipe protection cover, and remove pipe protection cover.



After end of operation, it is necessary to install according to original conditions.

3.Installation of Refrigerant Lines (outdoor unit)

Tubing procedure:

1. Keep stop valve on outdoor unit in "off" status (ex-factory specification) as original, dismantle end caps on refrigerant lines and the unit, and proceed quickly flare connection.
If being put aside for long period after end caps being removed, breakdown may happen to tubes because of invasion of dust, water and foreign matter into pipe, so please proceed connection operation rapidly.
 - Before tightening flare nuts, a layer of attached cooling engine oil should be thinly applied on the sealed pad surface between tubes and connectors.
 - Please proceed tubing connections with two wrenches and refer to the following table for tightening torque.
2. Proceed flare-connecting operation in succession and interconnect all refrigerant lines.
 - After pipes being connected, leakage detector or soup water must be used to check if there are any leaks.
3. Proceed evacuation from service entrance of stop valve on the outdoor unit.
4. After completion of above operation, keep stop valve (commonly used by liquid and gas) on the outdoor unit totally open. By then, refrigerant cycle between indoor and outdoor unit is all connected.

Attentions on application of flexible couplings

- Please apply flexible couplings at indoor lateral interconnecting areas.
- Bending angle cannot exceed 90 degree, and bending cannot be repeated more than 3 times.

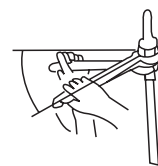
To reach appropriate torque as per torque wrench

External dia. of copper pipe(mm)	Torque (kg.cm)
Φ 9.52	350~420
Φ 15.88	750~800
Φ 19.05	1000~1400

When without torque wrench, please take following method as standard: when tightening flare nut with wrench, stop it and only rotate to angle stated as right table when tightening torque increases quickly.

Standard for torque angle

Φ 9.52	60°~90°
Φ 15.88	30°~60°
Φ 19.05	20°~35°



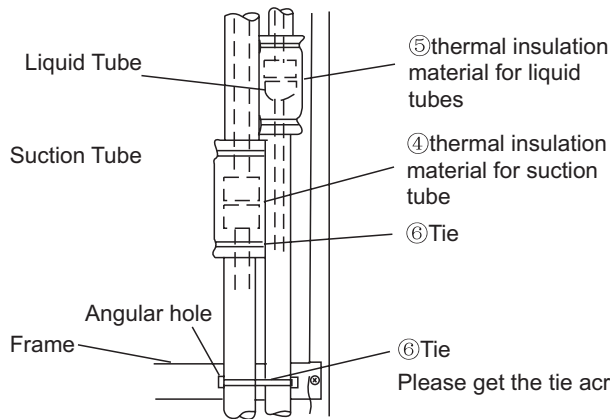
- Note:
- Please apply attached refrigerant lines thermal insulation materials ④⑤ for insulation on indoor lateral flare connection areas, and please make sure to proceed the operations stated as item 3 & 4.
 - Nonoxide brazing must be applied to pipes when proceeding brazing.

4. Installation of Refrigerant Lines (indoor unit)

Thermal insulation on interconnecting areas

- Please use reliable thermal insulation ④ ⑤ on the areas, do not let flare connection and where refrigerant lines come out.

(Condensing frost may produce and drip down without proceeding thermal insulation on interconnecting areas.)



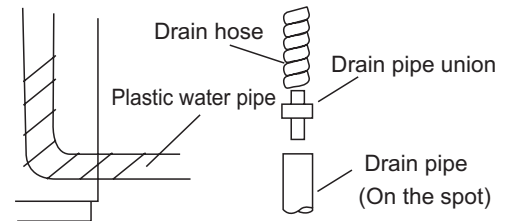
- Please locate thermal insulation material ④ for suction tube and thermal insulation material ⑤ for liquid tube as per up and down position, which will not produce sliding and align in one line one by one.

- After installation of thermal insulation material, please secure refrigerant tubes with tie ⑥ on the frame below interconnecting area of tubes to prevent moving of refrigerant tubes. Intake grille is unable to be installed when refrigerant lines are in moving condition

Please get the tie across the angular hole on the frame to secure refrigerant lines.

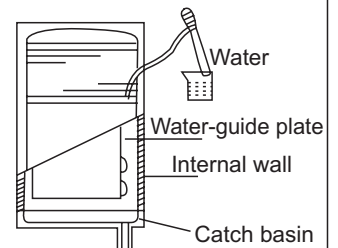
5. Installation of Drain Line

- Drain line must be inclined downward (minimum 1/100).
- Drain line must be PVC pipes with $\Phi 26$ of external diameter.
- Drain hose can be matched according to spot construction to cut with knife.
- Attached drainpipe union shall be applied when interconnecting and glued securely with PVC binding agent, making sure that the pipe is not leaking.
- Please do not put drain pipe directly to the sewer that may produce sulfur gas or a location that may produce bad smell.
- Please make sure no water leakage at interconnecting area of drain pipes.
- When drain pipe has to cross indoor, thermal insulation material (foam polyethylene with gravity of 0.03kg/m^3 and minimum 9mm of thickness) from the market must be applied to wrap the pipe and stick adhesive tape on the surface to prevent invasion of air and condensation.



6. Ensuring drainage

- After completion of installing drainage line, make sure that the line is draining water out and there is no water leakage at connecting area. (It must be ensured too during suction operation when installation).
- Insert effusion pipe (self-configuration by installation personnel) into the evaporator water-guide plate on the right lateral of air outlet with injection of about 1000ml water.
- Gently proceed effusion oriented to water-guide plate on the right side of heat exchanger or internal wall of the unit.
- For the conditioner with heater, please be careful not to wet the unit as there is a heater installed in front of heat exchanger.

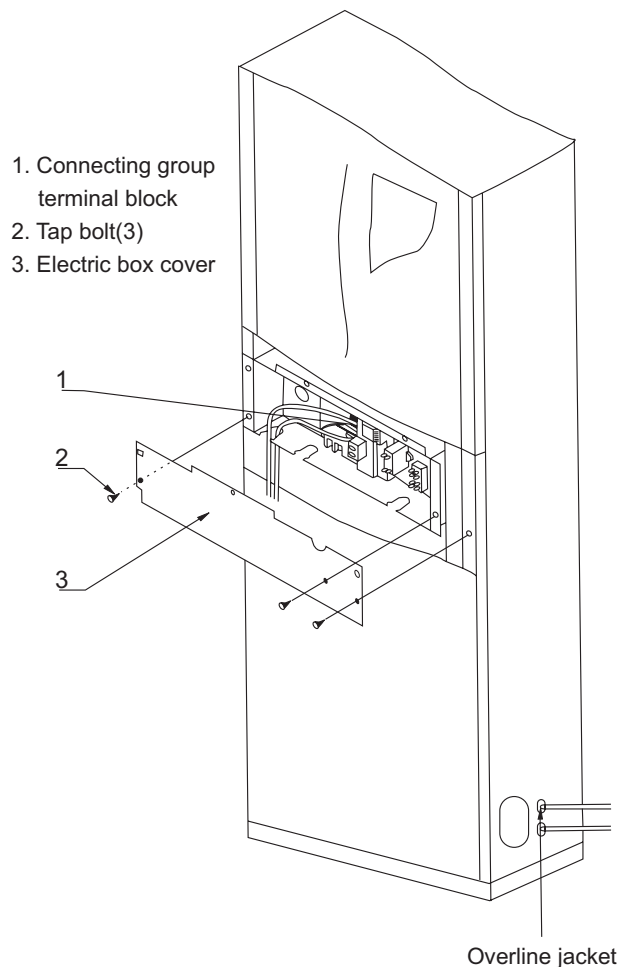


- Power supply connections cannot be proceeded on sub-circuit.
- Electrical configuration shall be based on suitable technical standard.
- Electrical connections must be proceeded strictly according to diagram. Bolts shall be tightened securely to avoid tear-off.
- Interconnecting wires between indoor and outdoor unit and power lines are not touchable mutually outside the unit.
- Please note that terminal board for control wiring cannot be connected to 230V power supply. (Which may cause problem)
- Wiring between terminal boards of indoor and outdoor unit f or controlling electric lines must be connected by yourself.
(Due to polarity relations, interconnections must be proceeded according to terminal code.)
- Compressor is inoperative when interconnection of power lines is wrong.

ELECTRIC CONNECTION ON INDOOR UNIT

1. Electrical Cable Connections (Please make sure terminal bolts are tightened)

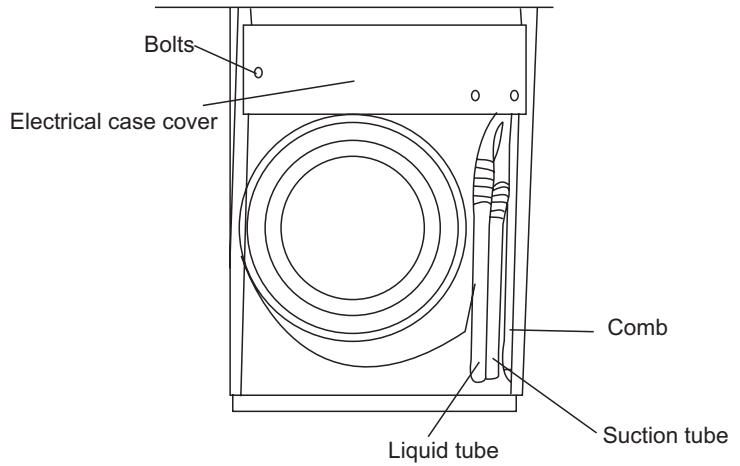
- 1) Dismantle tap bolts (3) from fixed electrical box cover and remove the cover.
 - 2) Connect power cable and controlling cable.
(Please refer to the schematic diagram on page 28 for position of terminal board)
 - 3) Secure wiring that has been connected with wiring fixation ties (2).
- Ground connection must be proceeded. (Diameter of ground electrode is over 1.6mm).
 - Please note that proper treatment is needed for wiring when wiring and tubing are touchable due to condensation.
 - Once you finish wiring, it is necessary to install dismantled parts back according to its original status.



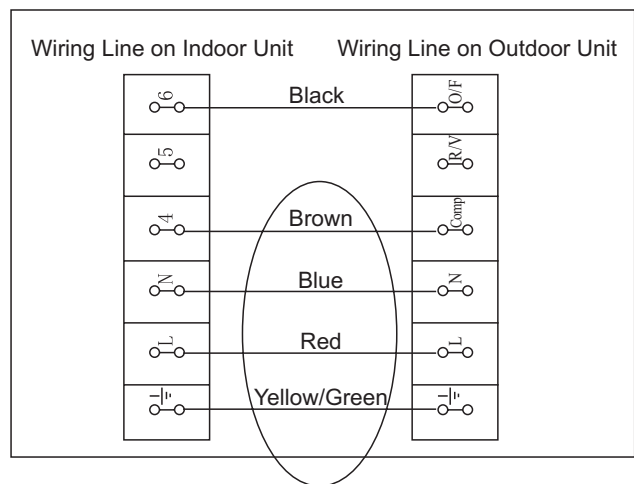
2. Interconnecting Cable between Indoor and Outdoor Unit

Wiring Method of Indoor Unit

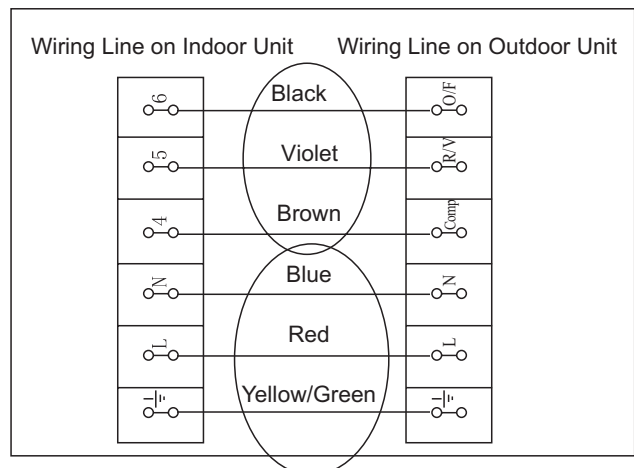
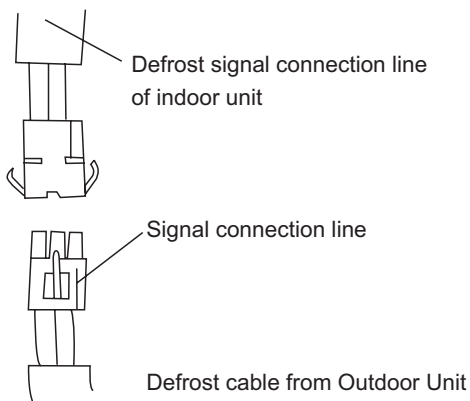
- Dismantle bolts on electrical case cover and display electrical case cover.
- Interconnect wires as per figure below and secure with fixation clamp.



1. For the Unit with Cooling Only



2. For the heat pump unit (power line and signal line connection must be proceeded.)

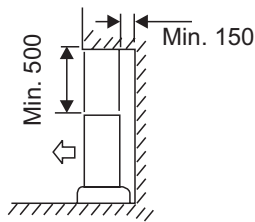


- Avoid directing sunlight.
When sunlight is inevitable, please install shelter from sun to prevent direct sunlight.
- Noises from the unit will not influence neighbors.
- Location easier for interconnecting power and tubing with indoor unit.
- Installation should not be located at a place that flammable gas may be produced, flow in, stop and leak.
When in operation, please pay attention to the high temperature air drained out from the unit.

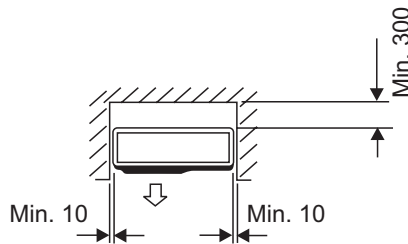
DETAILED DISTANCES OF SURROUNDING SPACES NECESSARY FOR OUTDOOR UNIT

1. Detailed distances of surrounding spaces necessary for separate setup

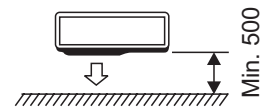
1) Upper obstruction
When obstruction only exists at back, it does not matter even if there are obstructions indicated as figure.



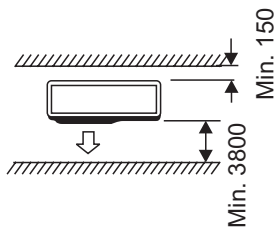
2) When front (air outlet) opens
As long as the spaces indicated as figure are kept, it does not matter even if obstructions exist at three lateral sides. (Upper is open)



3) Obstruction only at front (air outlet)
By then, backside, two lateral sides and upper side should be kept open.



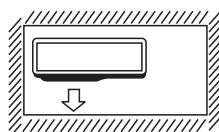
4) When obstructions at front and backside.



Maintenance Spaces

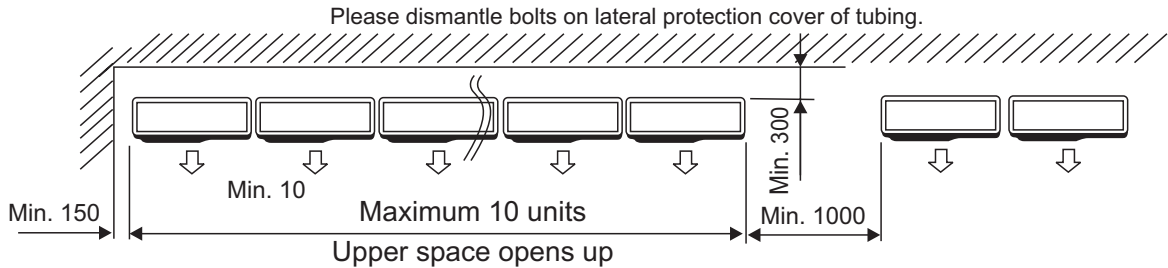
Keep maintenance space in the front of the unit stated as the following figure.

5) When there are obstructions at four lateral sides, upper side opens up. The unit cannot be installed when obstructions exist at four lateral sides.

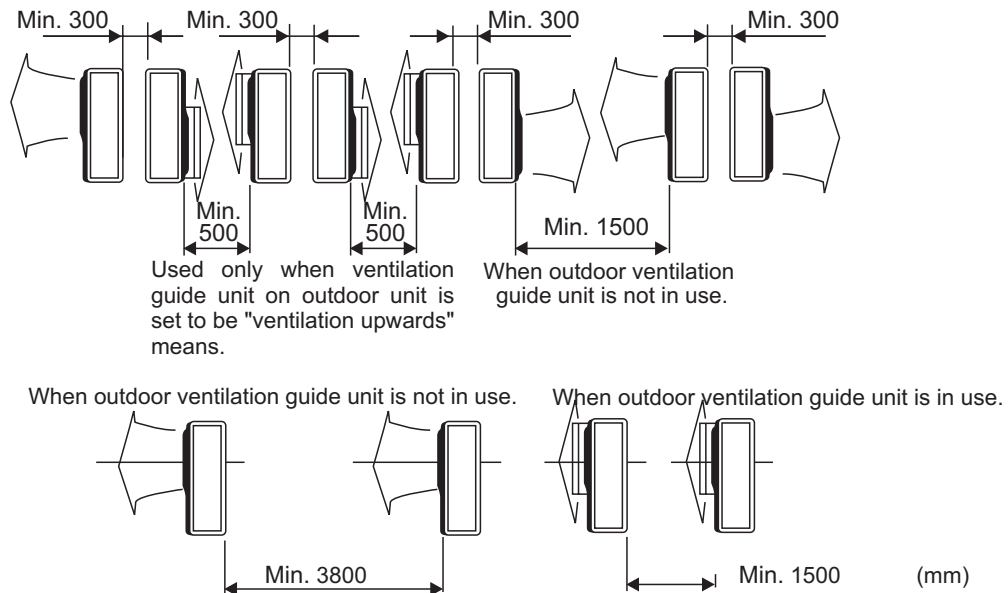


2. Interrelations when installing more than one unit at one place

(1) When in horizontal continuous centralized Installation



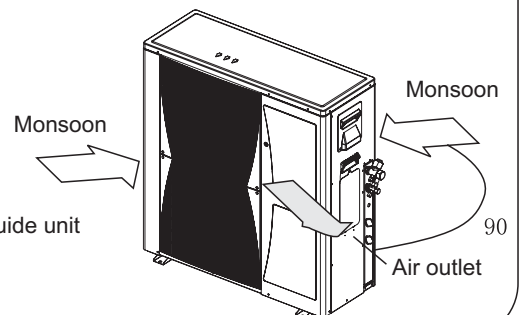
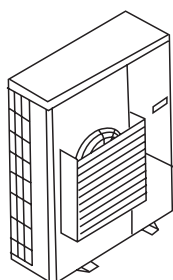
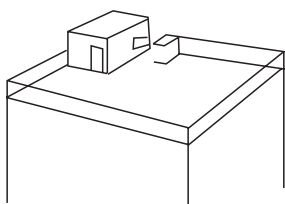
(2) Front-to-Back Configuration



- When outdoor unit will be installed on the housetop or a place without any shelters around, avoid strong wind blowing directly to air outlet on outdoor unit. If strong wind directly blows to air outlet, it may result in insufficient airflow and possibly cause problems.

Example

- When there is wall nearby, air outlet should be directed to the wall with minimum 500mm away from the wall.
- Ventilation guide unit (optional) should be installed when air outlet may be affected by strong wind like typhoon.
- When the outdoor unit operates in monsoon season, please change location of the outdoor unit so that the air outlet should be in right angle with air direction of monsoon.

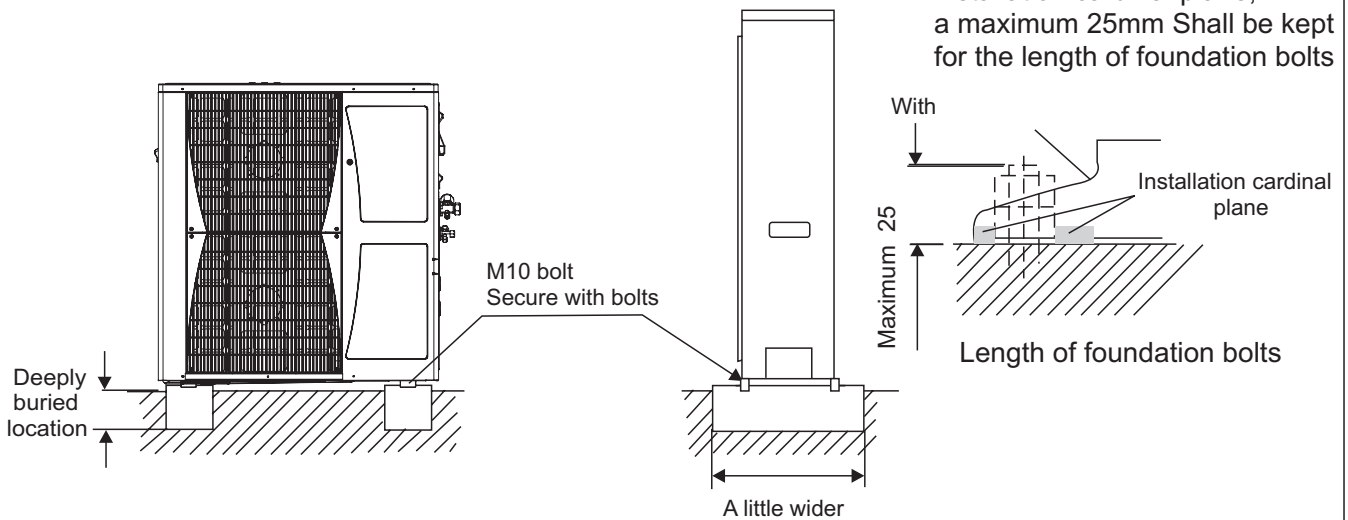


- Try your best to deliver the unit in original package to the installation location.
- Please be care not to overturn the unit when lifting up the unit with sling, as the gravity of the unit is not in the center.
- When moving, the unit is not to be inclined over 45 degree. (Do not store the unit horizontally).

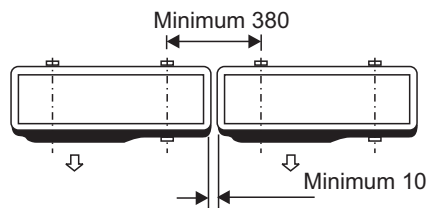
Outdoor Unit Mounting

- Bolts should be applied when installing outdoor unit to secure the foundation part of the unit.
Before securing, the shock absorption block rubber accompanying the unit must be placed between the sole and the installation plane (Foundation bolts for securing are purchased locally).
- In order not to collapse in case of earthquake or strong wind, it is necessary to secure the installation.
- Please refer to the following figure for concrete foundation.

Note: Measured from bottom lateral installation cardinal plane, a maximum 25mm Shall be kept for the length of foundation bolts



Distances between units when set in parallel.

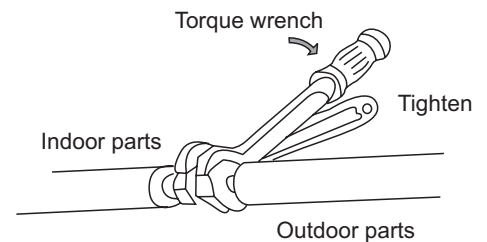
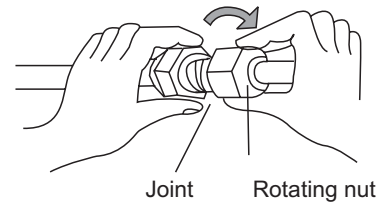


(Mm)

Please refer to Construction Work of Refrigerant Lines for torque requested to tighten nuts.

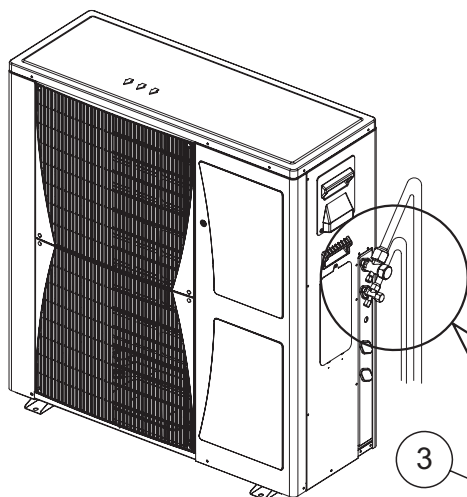
Connection of Tubing on Indoor Unit

- Open up push-out hole for tubing at the bottom according to the location of indoor unit, get the connection tube across the hole and connected with tube joint on the indoor unit (Upper Right Figure).
- Align right with the center of tube, and fully tighten conical nut by hand.
- Tighten conical nut by wrench (Right Figure).
- Wrap the non-heat insulated connection tube and joint with sponge, and bind tightly with plastic tape to prevent a cumulated water on base plate.

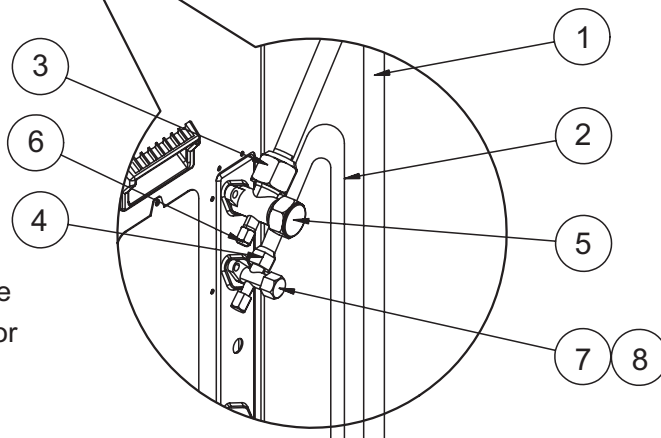


Connection of Tubing on Outdoor Unit

- Dismantle the conical nut cap on stop valve of outdoor unit.
- Align right with the center of tube, and fully tighten conical nut by hand.
- Tighten conical nut cap by wrench.
- Remove single-way valve caps on liquid valve and suction valve.
- Screw down core of liquid valve with socket wrench, and push out single-way valve core on suction valve with screwdriver, by which gas vents out.
- Gas continues to vent out for 15 seconds till refrigerant vapour appears, close single-way valve and tighten valve cap.
- Open up core of liquid valve and suction valve completely.
- Tighten valve cap, and detect if any leakage exist on interconnections between indoor/outdoor unit and tubing with soap water and leakage detection unit.



1. Connecting suction tube
2. Connecting liquid tube
3. Suction tube conical nut
4. Liquid tube conical nut
5. Suction valve nut cap
6. Single-way valve
7. Liquid valve nut cap
8. Socket wrench



Evacuate air in the connecting tube

- If condition allows, evacuate air in the connecting tube with vacuum pump or self-provide refrigerant.

Length of Connection Tube	Evacuation Method	Charging quantity of refrigerant
7.5M	Evacuation with self-provide refrigerant of the installing worker or by vacuum pump.	Nameplate
7.5~40M		(55g of refrigerant for each meter of added pipe length.)

1. Refer to section of vacuum pump or using refrigerant jar.
2. Quantity of charging refrigerant to be proceeded as per above table.
When relocate air conditioner, evacuate with vacuum pump or refrigerant jar.

Attentions on Operation of Stop Valve

- Open valve rod to the suitable are, do not try to open it more widely.
- Tighten valve cap with wrench or similar tools. Tighten torque on valve cap.

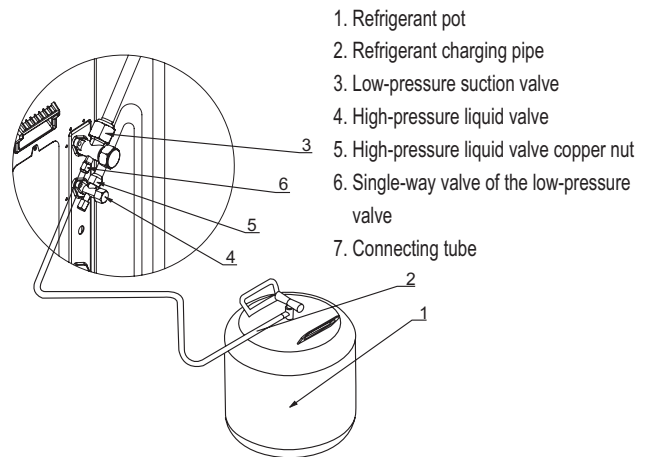
A. Evacuation with vacuum pump

1. Joint multiple meter charging tube ③ to single-way valve nozzle of low-pressure valve.
2. Connect charging tube joint with vacuum pump.
3. Open up multiple meter low-pressure valve (L0) handle and tighten the high-pressure handle completely.
4. Start vacuum pump for evacuation.
5. After completion of evacuation, completely close multiple meter low-pressure valve (L0) handle and stop vacuum pump.
Make sure if multiple meter is at $-10 \times 10^5 \text{Pa}$ (-76cmHg) after evacuation for over 15 minutes.
6. Remove charging tube from single-way valve nozzle of low-pressure valve.
7. Tighten low-pressure valve cap.

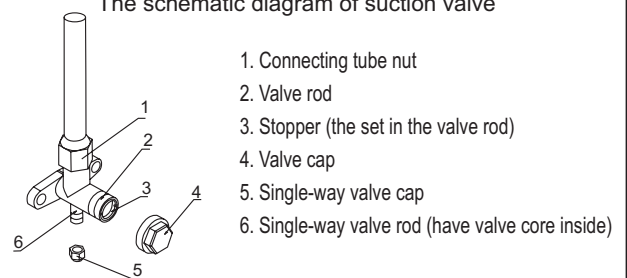
Note: It is not recommended to evacuate using refrigerant in the outdoor unit, which will result in refrigerant insufficient. If conditions not allow, it is necessary to use the refrigerant in the system and charge more 80g-100g refrigerant.

B. Evacuation using self-provide cooling agent of the installing worker

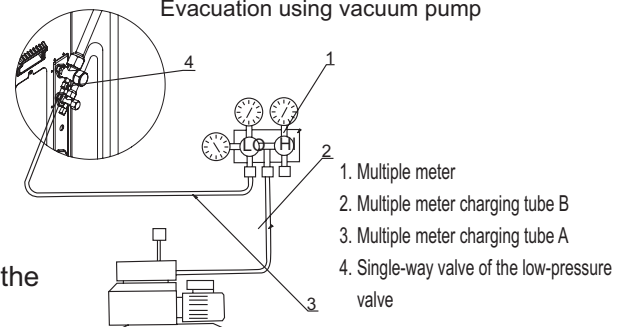
1. Joint the self-provide refrigerant pot to the nozzle of the low-pressure valve.
2. Slacken the high-pressure valve ⑤ copper nut cap.
3. Open the refrigerant pot ① so that the refrigerant can come into the tube.
4. After 15 seconds, you may feel cold at ⑤, tighten ⑤ and close ①. If the high-pressure valve has nozzle, the operation will be easier, just open the inner valve to evacuate the air in the tube.
5. Take off the tube and evacuate the excessive refrigerant through the inner core.



The schematic diagram of suction valve

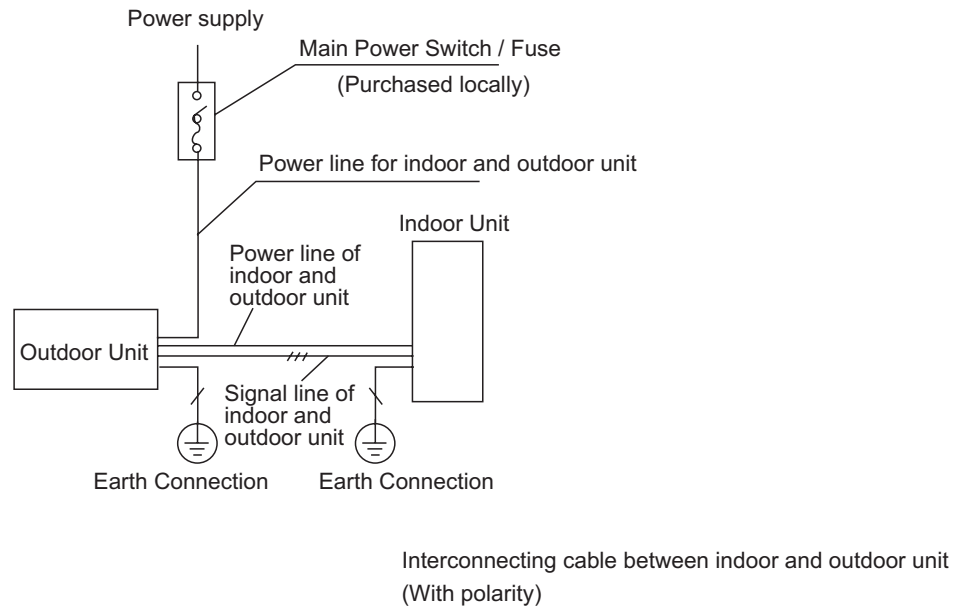


Evacuation using vacuum pump



Electrical wiring varies as per models. Please refer to electrical wiring diagram for details when proceeding electrical operation.

(Example)



Earth connection is necessary for air conditioner.

Power supply		Phase	Three-phase	
		Frequency & Voltage	50Hz, 400V	
Input capacity Main switch / Fuse		Indoor Unit (A)		
		Outdoor Unit (A)	3X16A	
Electrical Wiring	Power supply for indoor unit	Wiring qty.		
		Section area (mm ²)		
	Power supply for outdoor unit	Wiring qty.	5	
		Section area (mm ²)	2.5	
	Dimensions for earth connection wire (mm ²)		2.5	
Wiring section for interconnecting indoor and outdoor unit		Cooling only: 4 X1.5 Heat pump unit: 3X2.5	Heat pump unit with service electric heater: (2X3)X2.5	

Attention:

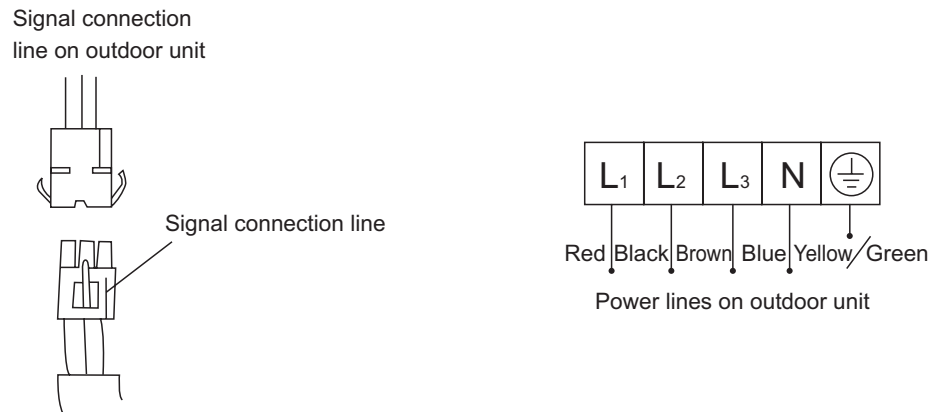
1. Environmental conditions (environmental temperature, direct sun and rainwater, etc.) shall be considered when proceeding electrical wiring and connection.
2. Dimensions of wires are minimum value of copper core wire. In case of voltage decreasing, dimensions of power core wire should be increased by one grade.
3. Ground wire should be connected to outdoor unit and indoor unit.
4. The following diagram is an example of spot electric wiring so that the detailed wiring should be in accordance with technical standard.

Dismantle front lateral board

Open up outdoor wire-cross hole and put on square wire-cross diagram.

Induce connection wire out from 6 bit wiring board on outdoor unit, drill through outdoor wire-cross hole and indoor wire-cross hole, and connect the wire to the 6 bit wiring board on indoor unit. Please refer to the following diagram for power line wiring.

Secure lines with fixation clamps after wiring as the diagram.



Checking the phase sequence:

When there is phase sequence protection, the fan of indoor and outdoor unit will run, but the compressor will not run, or will run with abnormal noise.

Phase sequence protection:

The product is equipped with antiphase protector to make sure that when the compressor is in the antiphase situation (below three phase), the power will be cut off immediately, so the compressor will not work while the motor of indoor and outdoor unit can still work. The protector has an indicator, which will light up only when the phase sequence is correct and without antiphase. When the indicator doesn't light up, it indicates accidents to be handled. Refer to how to adjust the phase sequence to solve the accident.

How to adjust phase sequence:

If there is an accident, please cut off the power immediately. To adjust the phase sequence, exchange the random two poles of the three external line L1/L2/L3 on wiring layout of the power wire, or exchange random two poles of line 2、4、6 on the AV contactor directly. Two steps are needed to adjust the phase sequence of the conditioner with phase sequence protector: first, make sure that the phase sequence of the compressor is consistent with that of the phase sequence protector; second, make sure that the phase sequence of the power is consistent with that of the phase sequence protector. Usually, the first is adjusted before the conditioner leaves factory, but the latter must be adjusted on site when installing. If the indicator lights and there is abnormal noise when the compressor is in operation, please make sure that the phase sequence of the compressor is consistent with that of the phase sequence protector.

The pressure protection:

Some products of our company have pressure protection equipment. If your unit has such equipment, please read the following content:

High-pressure protection switch: to assure that the system will not be damaged by the overhigh pressure.

Low-pressure protection switch: to protect the compressor when the system is badly short of refrigerate.

If the above product is damaged, please use the accessory designated by our company.

Cooling or Heating Test Operation

To be set in Cooling mode

Proceed Cooling or Heating test operation after completing leak detection on leakage.

Set the Cooling or Heating mode.

Refer to the instruction
for the procedure.

Note: the compressor has 3-min delay
protection function to prevent damage
to the compressor when frequently
startup the conditioner.

THE CHECKING ITEMS OF TEST OPERATION:

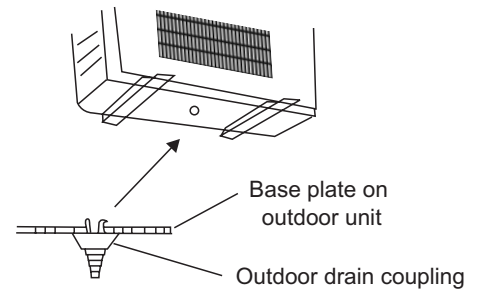
1. Checking the phase sequence: this item is very important, refer to the content of checking the phase sequence on page 35.
2. Checking temperature difference of the outlet air, that is, whether the temperature difference between the outlet air and the inlet air is equal or above 8°C.
3. Checking outdoor unit:
 - a. When in operation mode, whether or not the motor is running; when fan is rotating, whether or not there is abnormal noise.
 - b. When the stop valve is connected to the pressure gauge, whether or not the displayed pressure is normal.
 - c. Check to make sure that the stop valve is opened completely and the valve cap is installed and tightened.
 - d. Check to make sure that the wiring of lines is correct.
4. Checking indoor unit:
 - a. When in operation mode, whether or not the motor is running; when fan is rotating, whether or not there is abnormal noise.
 - b. Whether or not the connection of drain lines is firm and is water-leaky.
 - c. Whether or not the connecting copper between the indoor unit and the outdoor unit is reliable and without leak.
 - d. Whether or not the connecting tube is distorted at the bend.
 - e. Because the unit is tall and large, measures preventing overturn must be taken; check to make sure that the installation is firm.
 - f. Make sure that the wiring is correct.
5. Checking the operation of the conditioner:
 - a. Does it work normally in cooling or heating mode;
 - b. Does the air swing work correctly;
 - c. Does the ionizer work correctly and its indicator light up.

The above content of check operation shall be confirmed and recorded by the installing personnel, only after user's confirmation, can the installing personnel leave.

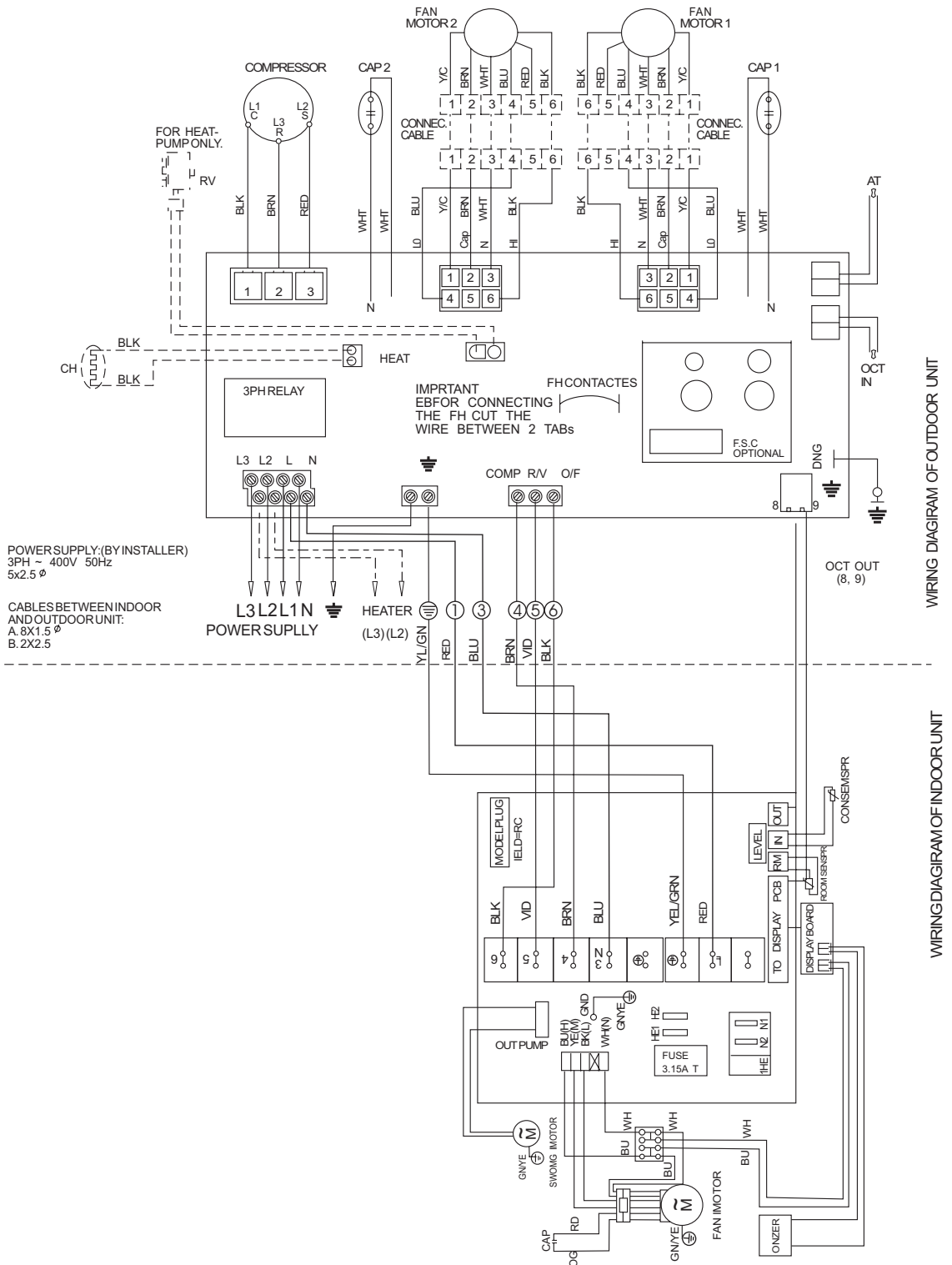
**THIS FUNCTION IS ONLY
APPLICABLE FOR HEAT PUMP UNIT**

When in heating mode, condensing water formed on outdoor unit and defrost water produced when defrost can be drained out to the suitable place through drain line.

Installation method: Insert the outdoor drain coupling into the ϕ 25 hole on base plate as per figure. Then connect the drain tube with the coupling, which will lead condensing water and defrost water to the suitable place.



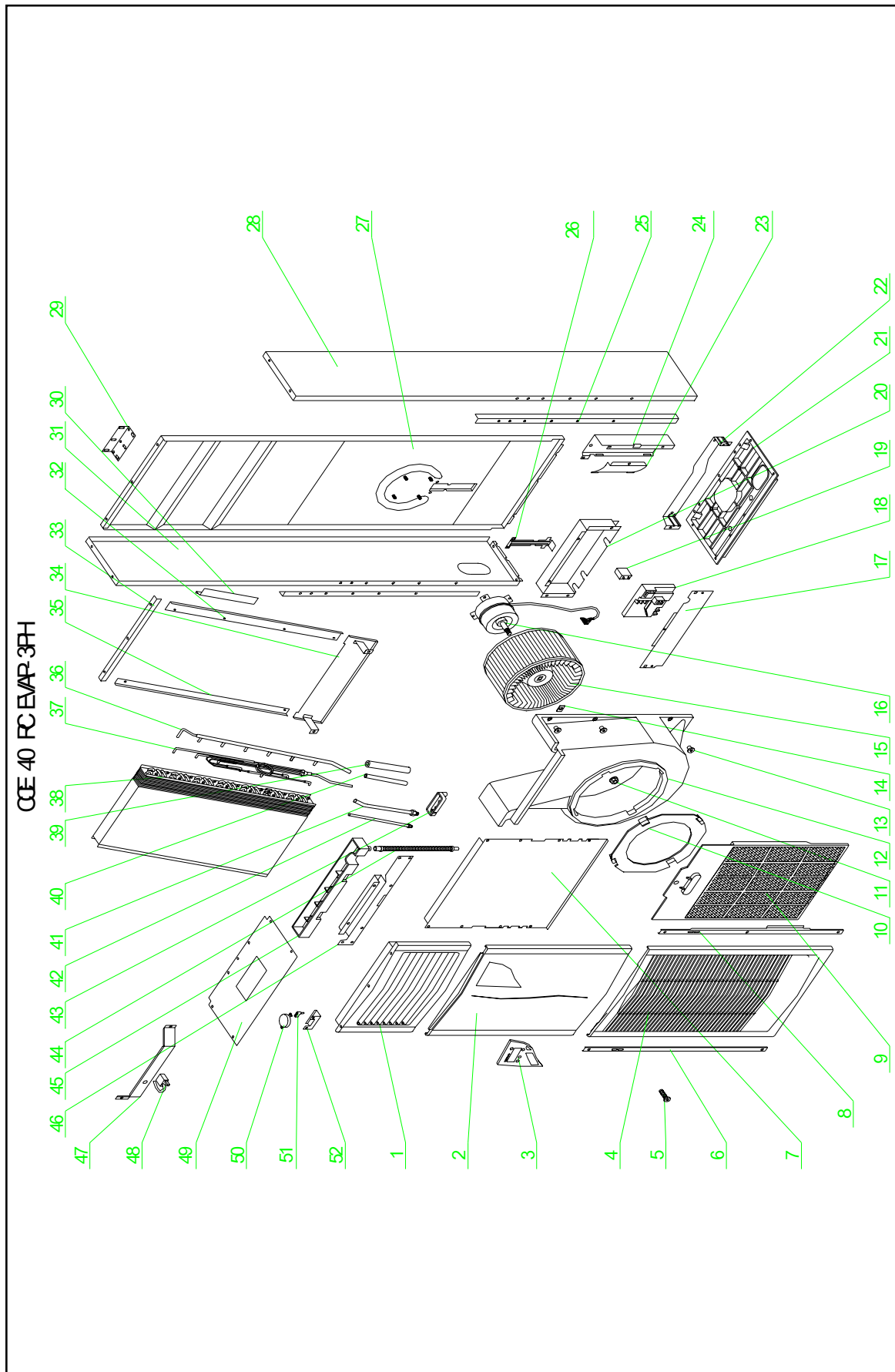
• No further notice will be given in case of any further change to the wiring diagram. Please use the wiring diagram on the unit as reference.



Exploded view

12

Model: FS KFR 120L Indoor Unit



Spare parts list

12

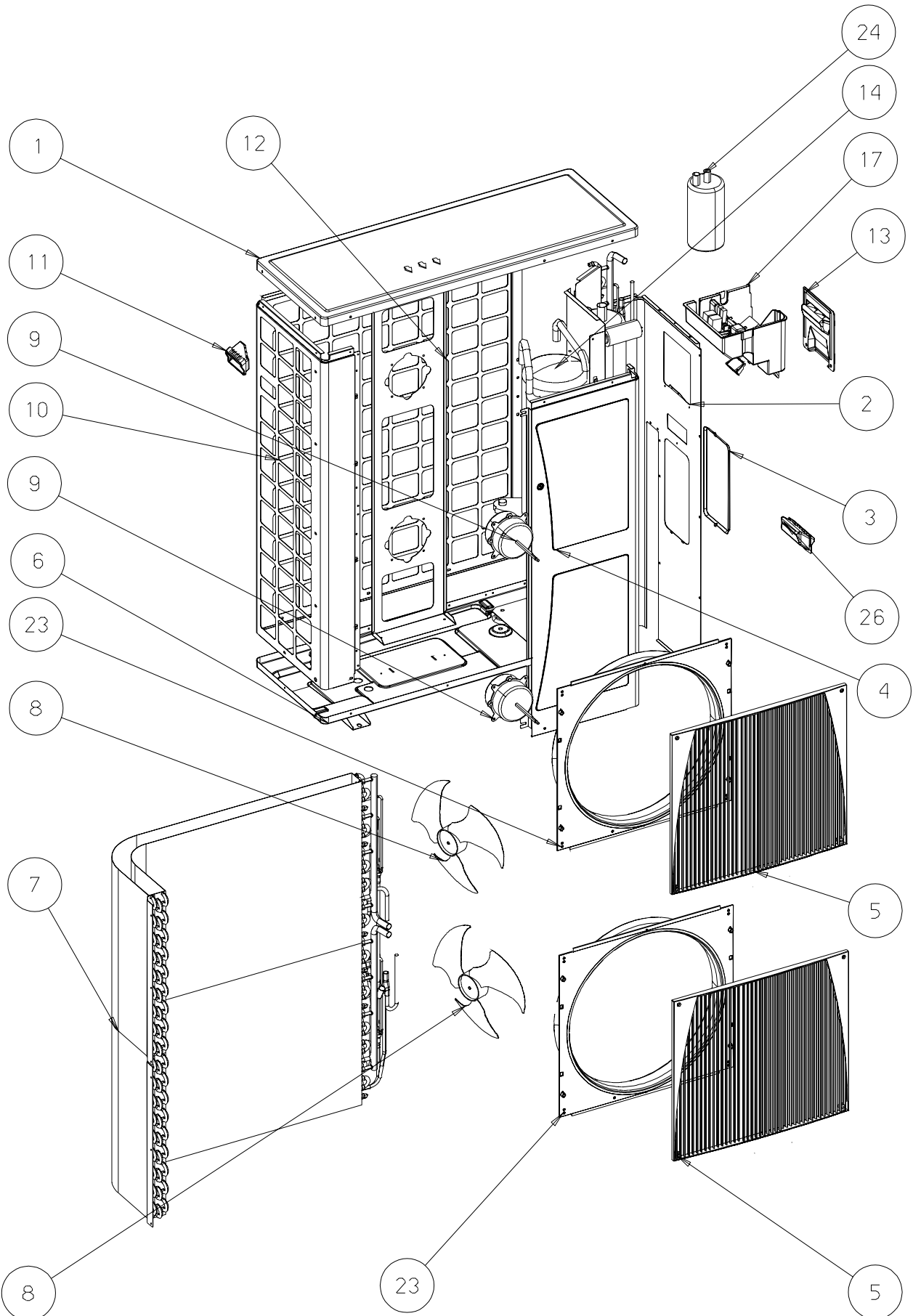
Model: FS KFR 120L Indoor Unit

No.	Part No.	Name	Qty.	Ver.
1	4517874	outlet grid	1	1
2	4519858	middle front	1	1
3	4519523	display panel assy.	1	1
4	4517870	inlet grid	1	1
5	4517400	screw M4*18	1	1
6	4517872	left track	1	1
7	4518123	protect plate and insulation	1	1
8	4518051	right track	1	1
9	4517871	filter	1	1
10	4517885	leading air ring	1	1
11	4517884	air house	1	1
12	4513682	fan nut	1	0
13	4513713	casing of air house	9	0
14	4513755	fixed block	1	0
15	4517886	centrifugal fan	1	1
16	4517883	motor	1	1
17	4517882	Controller box cover	1	1
18	4517913	storm	1	1
19	4515612	fan cap.	1	0
20	4517804	Controller box	1	1
21	4517881	base plate	1	1
22	4517802	Supporter for air house	1	1
23	4517800	copper tube protect plate(up)	1	1
24	4517801	copper tube protect plate(down)	1	1
25	4517799	L&R strengthen plate	2	1
26	4517803	wire fixed plate	1	1
27	4517797	back plate paint assy.	1	1
28	4518050	right side plate paint assy.	1	1
29	4518073	fix plate paint assy.	1	1
30	4519043	cover of copper tube	1	1
31	4517798	left side plate paint assy.	1	1
32	4517715	right support plate	1	1
33	4517716	down support plate	1	1
34	4517714	Upper support plate	1	1
35	4517713	left support plate	1	1
36	4517543	Collection gas tube assy.	1	1
37	4517542	division capillary assy.	1	1
38	4516729	evaporator assy.	1	1
39	4518048	liquid tube insulation	1	1
40	4518049	gas tube insulation	1	1
41	4517545	gas tube assy.	1	1
42	4517544	liquid tube assy.	1	1
43	4517877	Gathering water pan	1	1
44	4517878	drain pipe	1	1
45	4517876	drain pan and insulation assy.	1	1
46	4517880	support plate of drain pan	1	1
48	4517905	ionizer assy.	1	1
49	4517879	top cover paint assy.	1	1
50	4513769	swing motor	1	0
51	4514539	swing bar	1	0
52	4517795	swing motor bracket	1	1

Exploded view

12

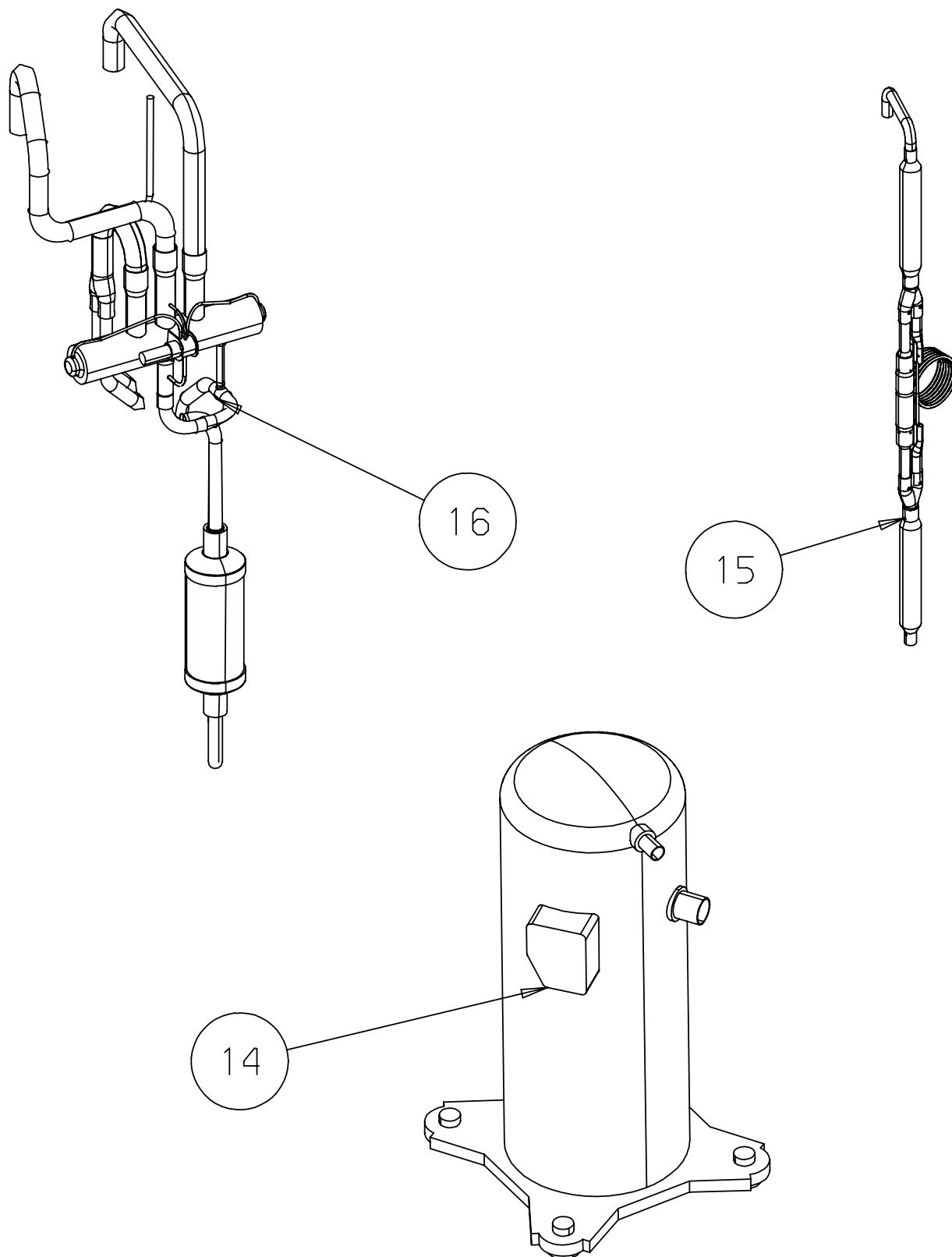
Model: FS KFR 120L Outdoor Unit



Exploded view

12

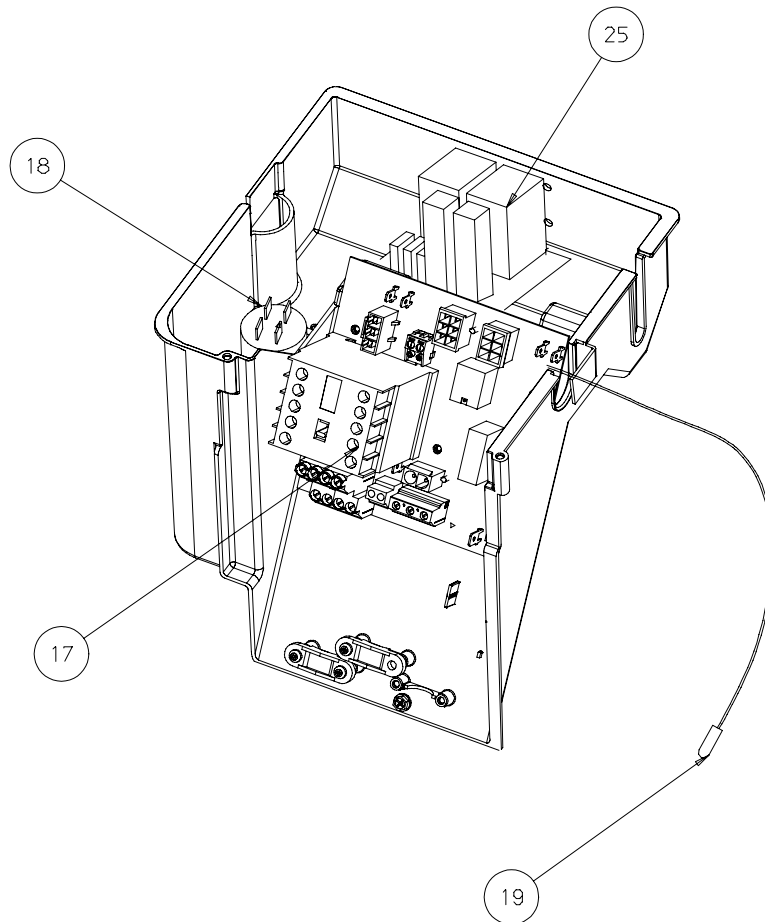
Model: FS KFR 120L Outdoor Unit



Exploded view

12

Model: FS KFR 120L Outdoor Unit



Spare parts list

12

Model: FS KFR 120L Outdoor Unit

1	437045	LARGE UPPER COVER OU	1	4
2	439655	SIDE PANEL OU10	1	3
3	439656	SIDE COVER OU10	1	2
4	439653	FRONT PANEL OU10	1	3
5	439662	GRILLE OU10	2	1
6	439833	NEW BASE ASSY OU	1	1
7	439744	COIL OU10-50 R407C	1	1
8	439650	AXIAL FAN D400*112	2	1
9	439651	MOTOR 70W,3S,OU10	2	2
10	439654	NET SIDE PANEL OU10	1	3
11	436358	OU LEADING HANDLE	1	1
12	439657	MOTOR SUPPORT OU10	1	2
13	436357	SMALL ELECTRICAL COVER OU	1	3
14	439767	COMPRESSOR HR061YAA	1	1
15	439746	CAPILLARY ASSY OU10-50 R407C	1	1
16	439829	TUBING ASSY OU10-50 R407C	1	1
17	402494	BOARD TPHN 3C	1	1
18	442378	CAPACITOR 400V 3mF	2	2
19	434716	THERMISTOR+CAP WTH CONNECTOR L1050	1	1
21	442462	VALVE COIL L700 4-WAY MOLEX	1	1
22	435545	COMPRESSOR WIRING WTH PLUG L1100 3PH	1	1
23	439661	CONES OU10	2	1
24	402189	SUCTION ACCUMULATOR 5" x 3/4" 7Lb	1	1
25	439795	BOARD 3PH PROTECTOR	1	1
26	436352	RAISING HANDLE OU10	1	1
27	190442	HEATER CRANKCASE OU10 LG	1	1