Invoice

Midea Cycle-Heating Household Heat Pump Water Heater Technical Manual

Date	Invoice #

Bill To:	Ship To:

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project

Quantity	Item Code	Description	Price Each	Amount

Applicable:

RSJF-35/CN1-A
RSJF-50/CN1-A
RSJF-65/CN1-A

Midea reserves the right to discontinue, or change at any time, specifications or designs without notices and without incurring obligations.

Total

Contents

Part 1
General Information

1. Model Names of Outdoor Units

Outdoor Units

Model name	Dimension (mm)	Net/Gross weight (kg)	Power supply
RSJF-35/CN1-A	Width: 790 Height: 736 Depth:260	54/57	220~240V-1ph-50Hz
RSJF-50/CN1-A	Width: 790 Height: 736 Depth:260	62/66	220~240V-1ph-50Hz
RSJF-65/CN1-A	Width: 845 Height: 314 Depth:940	81/86.5	220~240V-1ph-50Hz

Water Tank

Model name	Dimension (mm)	Net/Gross weight (kg)	Packing Dimension W×D×H
LSX-260XP/D	Φ560*1637	44/51	1710*620*635
LSX-300XP/D	Φ560*1862	55/63	1960*620*635
LSX-350XP/D	Φ560*2150	55/64	1760*690*705
LSX-400XP/D	Φ630*1879	66/74	1980*690*705
LSX-500XP/D	Φ630*2315	74/81	2195*690*705

2. External Appearance

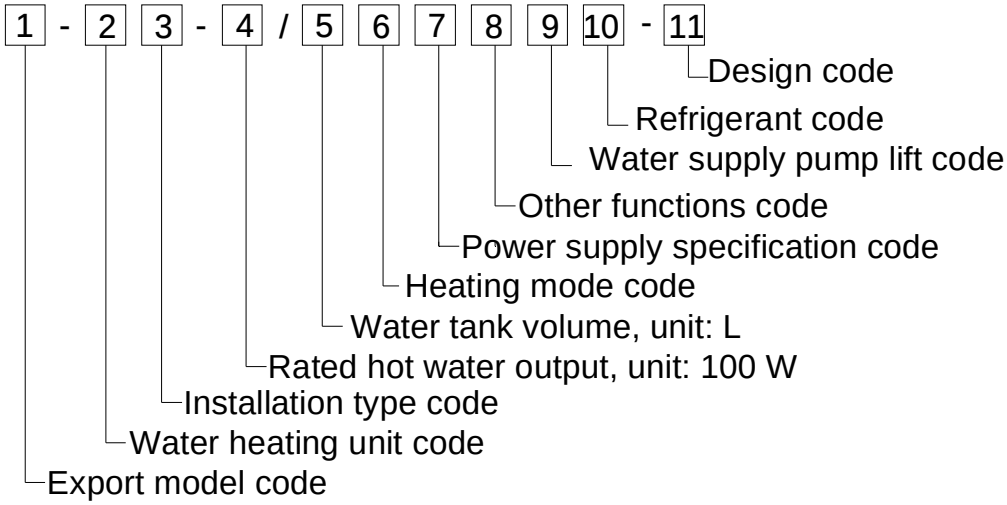
Outdoor unit And Water Tank

RSJF-35/CN1-A RSJF-50/CN1-A RSJF-65/CN1-A

LSX-260XP/D LSX-300XP/D LSX-350XP/D LSX-400XP/D LSX-500XP/D

3. Nomenclature

Household water heating unit



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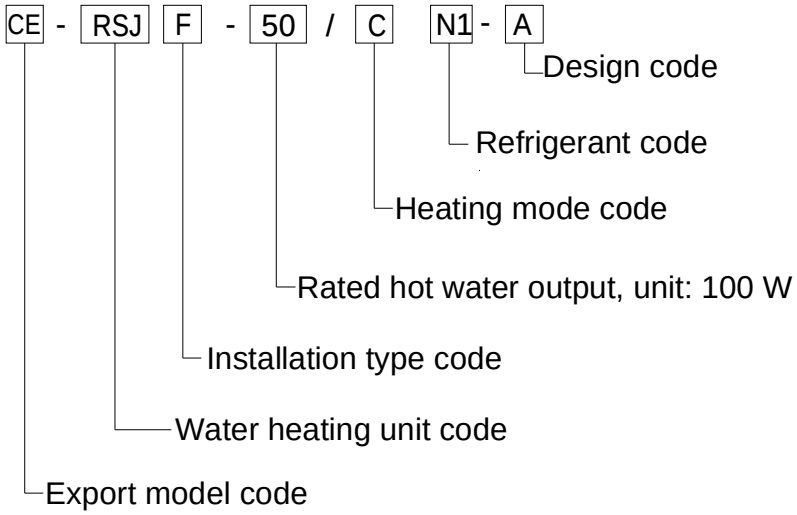
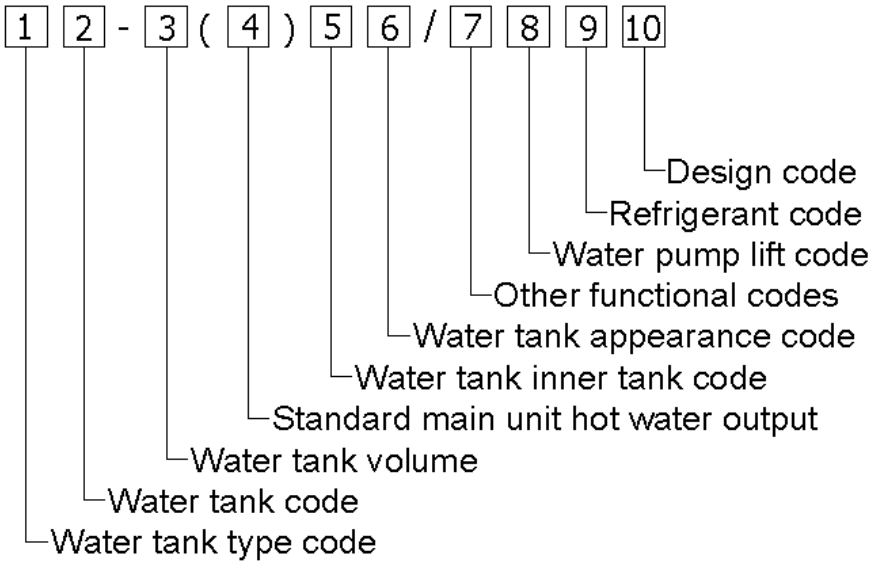


Water Tank



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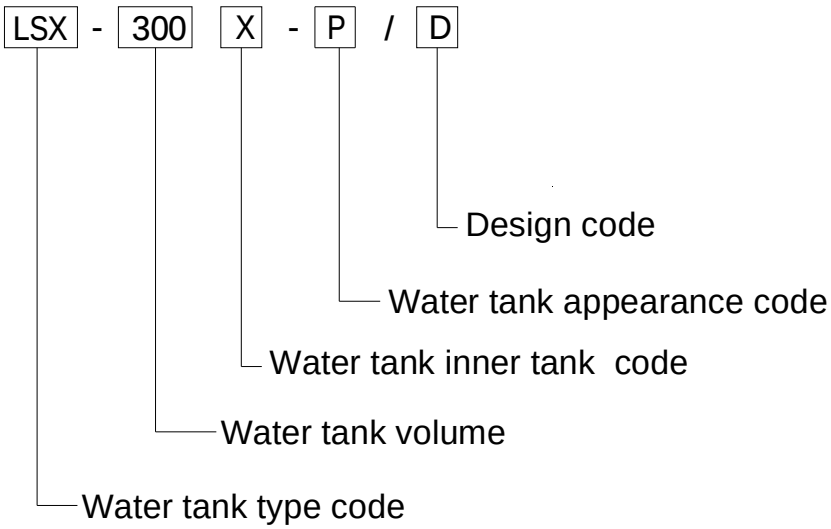


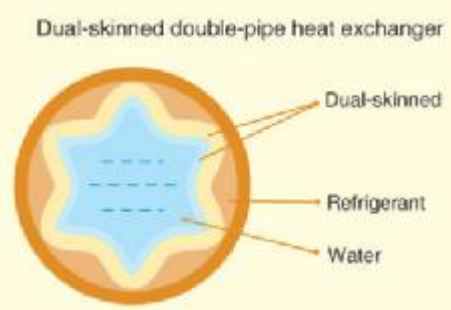
4. Features

4.1 Safety

a. Realize isolation between water and electricity. No electric shock problem, more safety.

b. No fuel tubes and storage, no potential danger from oil leakage, fire, explosion etc.

4.2 Double wall heat exchanger built in main unit



- **Dual-skinned double-pipe heat exchanger is available, and it's the best way to prevent refrigerant leakage.**
- **R410A is available.**

4.3 R410a gas, Environmental protection.

a. No discharge of poisonous gas.

b. No pollution to atmosphere and environment

4.4 Max. water temperature: 55℃.

4.5 Rapid speed to produce hot water.

The Water Tank can match with the same outdoor unit freely.

4.6 Easy operation and automatic control.

The system can be controlled simply through the wired controller.

Automatic start-up and shutdown, automatic defrosting. Save you much extra operation.

4.7 High efficiency and energy-saving.

The unit adopts heat pump principle, which absorbs heat from outdoor air and produce heat water, thermal efficiency can be approximately 4.0.

4.8 All-the-weather running.

Within the temperature range from -7 to 43℃, it will not be affected by night, overcast sky, rain and snow.

4.9 Convenient installation and maintenance

The quadrate type can be easily installed in a corner of the verandah even if it's very narrow

4.10 Wilo water pump built in main unit, The water pump combine with copper.

4.11 EMI,SAA approval

Part 2
Outdoor units

1. Specifications

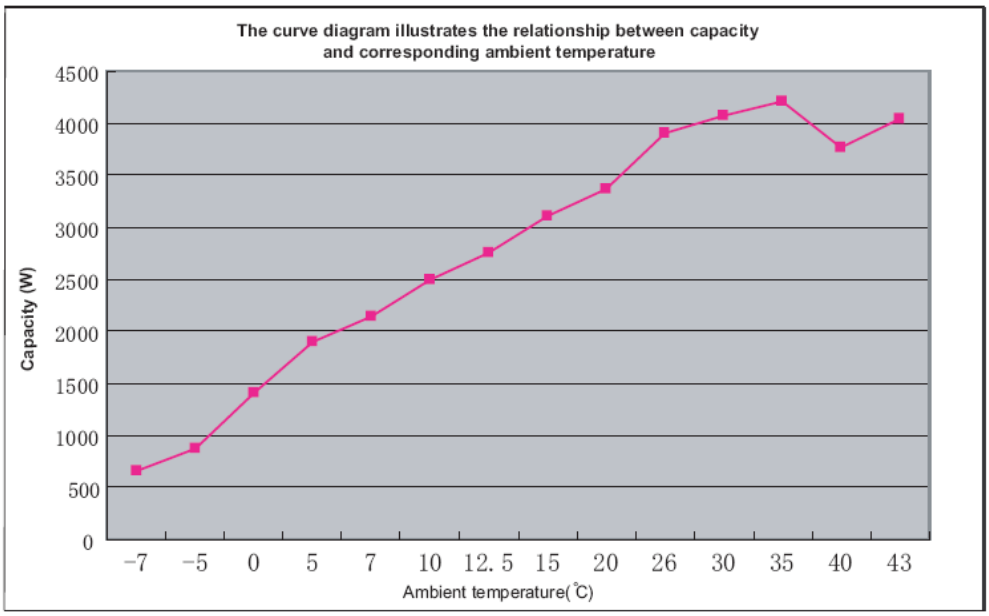
Model			RSJF35/CN1-A	RSJF50/CN1-A	RSJF65/CN1-A
Power supply		Ph-V-Hz	1-220~240-50	1-220~240-50	1-220~240-50
Water Heating	Capacity	kW	3.5	5	6.5
	Input	kW	1.01	1.29	2.02
	Rated current	A	4.6	5.9	8.5
Water Tank	Volume	L	100-180	180-250	200-320
Max. input consumption		kW	1.3	1.75	2.7
Max. input current		A	6	8	13.7
Starting current		A	15	29.9	36.8
Compressor	Model		PA118X1C-4DZ	PA150X2C-4FT	PA240X2CS-4KU1
	Type		Rotary	Rotary	Rotary
	Brand		Toshiba	Toshiba	Toshiba
	Supplier		MIDEA-TOSHIBA (Guangdong)	MIDEA-TOSHIBA (Guangdong)	MIDEA-TOSHIBA (Guangdong)
	Capacity	kW	2.8	3.66	5.8
	Input	kW	0.97	1.26	1.99
	Rated current(RLA)	A	4.5	5.8	9.3
	Locked rotor Amp(LRA)	A	15	29.9	36.8
	Thermal protector		INNER	INNER	INNER
	Capacitor	uF	25	35	50
	Refrigerant oil	ml	350	480	750
Outdoor fan motor	Model		YDK24-6R	YDK36-6R	YDK65-6N
	Brand		Welling	Welling	Welling
	Input	kW	0.06	0.08	0.125
	Capacitor	uF	2.5	3.5	3
	Speed(hi/lo)	r/min	7050/360	775/510	830/450
Outdoor coil	a. Number of rows		1.5	2	2
	b. Tube pitch(a)x row pitch(b)	mm	25.4X22	25.4X22	25.4X22
	c. Fin spacing	mm	1.8	1.8	1.8
	d. Fin type		Hydrophilic aluminium	Hydrophilic aluminium	Hydrophilic aluminium
	e. Tube outer dia. and type	mm	Φ9.52 innergroove tube	Φ9.52 innergroove tube	Φ9.52 innergroove tube
	f. Coil length x height x width	mm	772X484X44	772X484X44	750X660X44
	g. Number of circuits		5	5	5
Outdoor noise level		dB(A)	55	55	52
Outdoor unit	Dimension (W*H*D)	mm	790×736×260	790×736×260	845×940×314
	Packing (W*H*D)	mm	905×807×355	905×807×355	965×1009×395
	Net/Gross weight	kg	54/57	62/66	81/86.5
Refrigerant type/Quantity		kg	R410A/1.35	R410A/1.22	R410A/1.45
Design pressure		MPa	2.6/0.55	2.6/0.55	2.6/0.55
Refrigerant piping	Liquid/ Gas side	mm	Φ8/Φ9.52	Φ8/Φ12.7	Φ9.52/Φ12.7
	Max. pipe length (water)	m	5	5	5
	Max. difference in level	m	3	3	3
Ambient temp		℃	-7℃-43℃	-7℃-43℃	-7℃-43℃
Water pipe	Diameter, water inlet pipe	mm	DN15	DN15	DN15
	Diameter, water outlet pipe	mm	DN15	DN15	DN15
	Diameter, water circulating pipe	mm	DN20	DN20	DN20
Wire Controller			KJR-17B/BE	KJR-17B/BE	KJR-17B/BE
Hot Water Yield		m3/h	0.075	0.107	0.15
Water outlet temp.		℃	40℃～55℃	40℃～55℃	40℃～55℃

2. Relationship between Outdoor Ambient Temperature and Unit Capacity

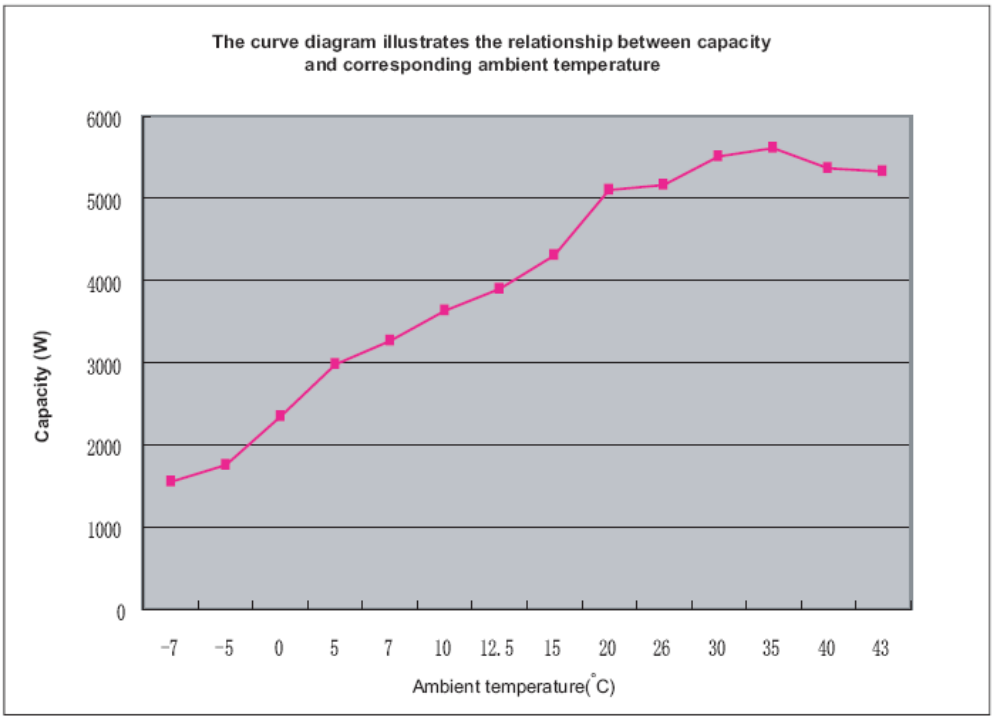
Heat Pump Models:

RSJF-35/CN1-A RSJF-50/CN1-A RSJF-65/CN1-A

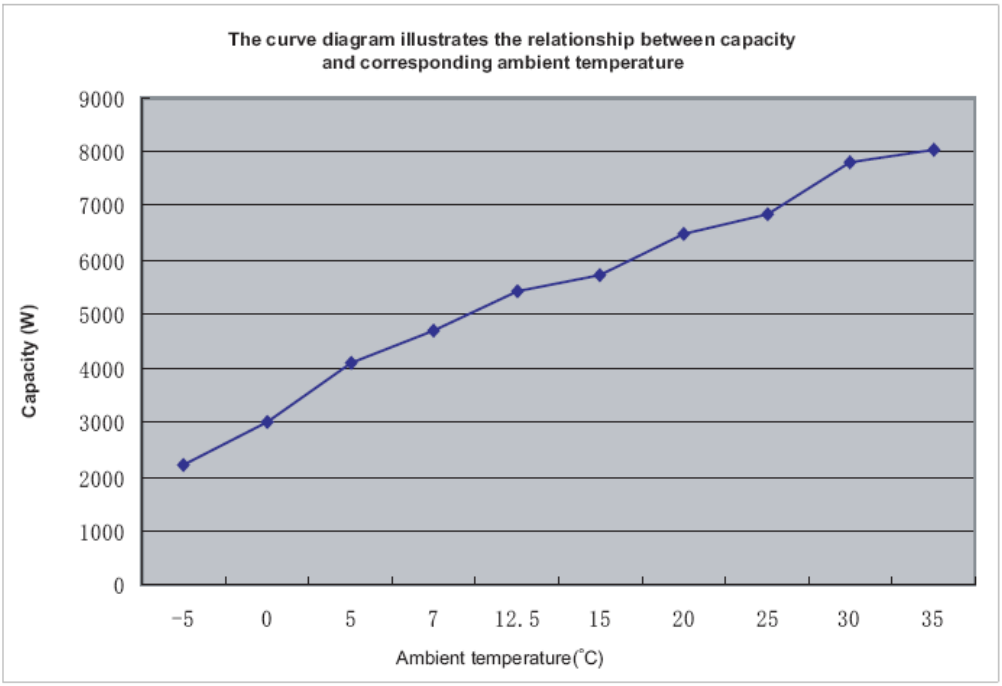
RSJF-35/CN1-A



RSJF-50/CN1-A



RSJF-65/CN1-A

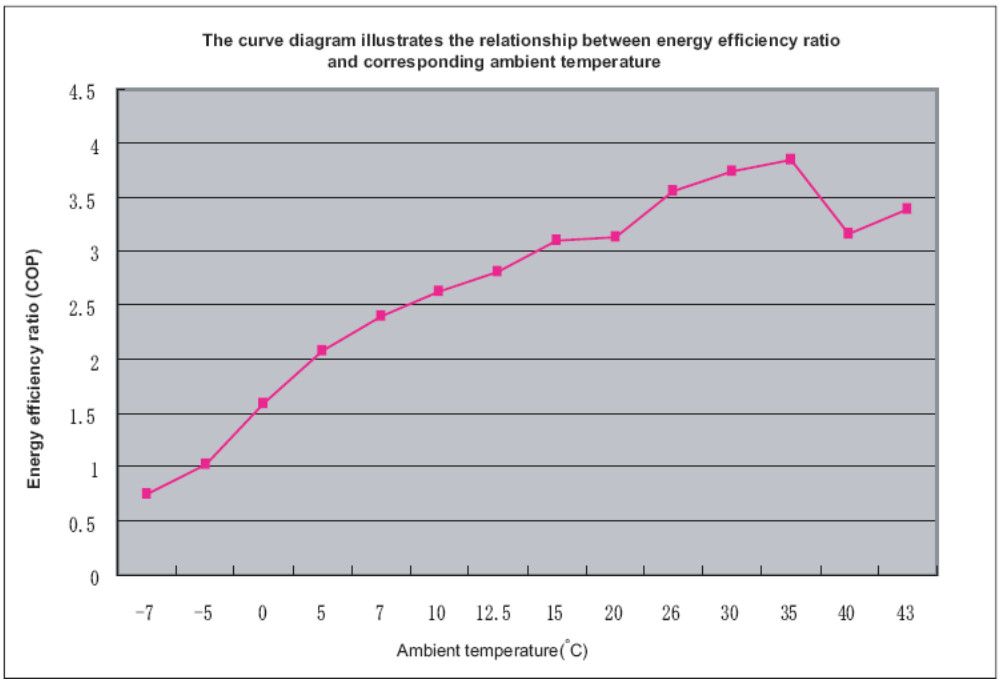


3. Relationship between Outdoor Ambient Temperature and COP

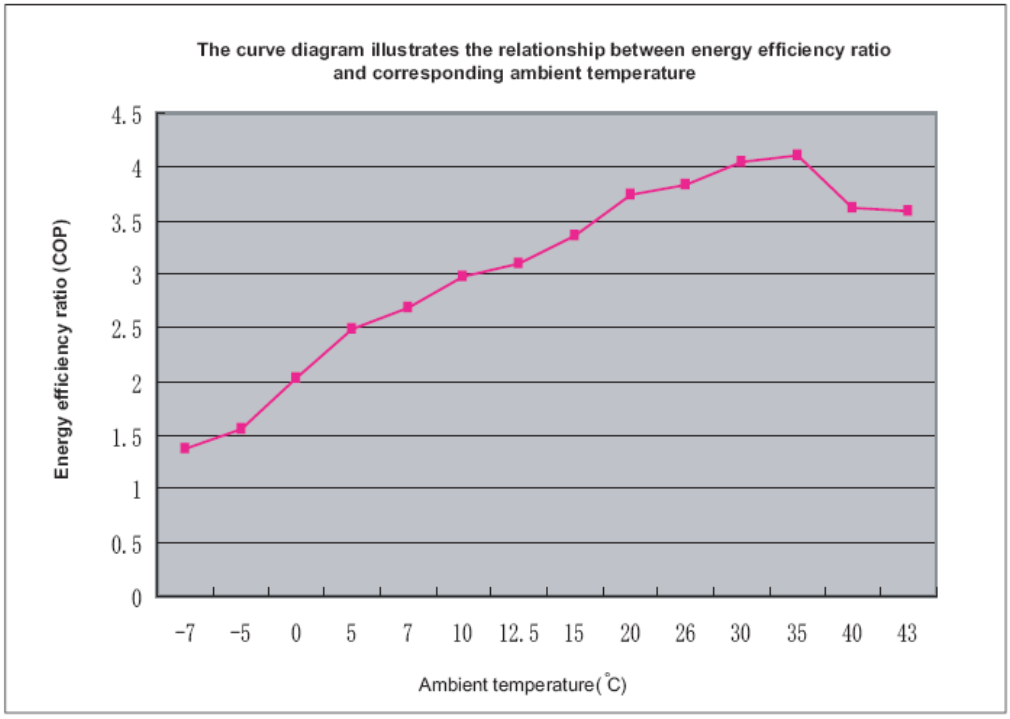
Heat Pump Models:

RSJF-35/CN1-A RSJF-50/CN1-A RSJF-65/CN1-A

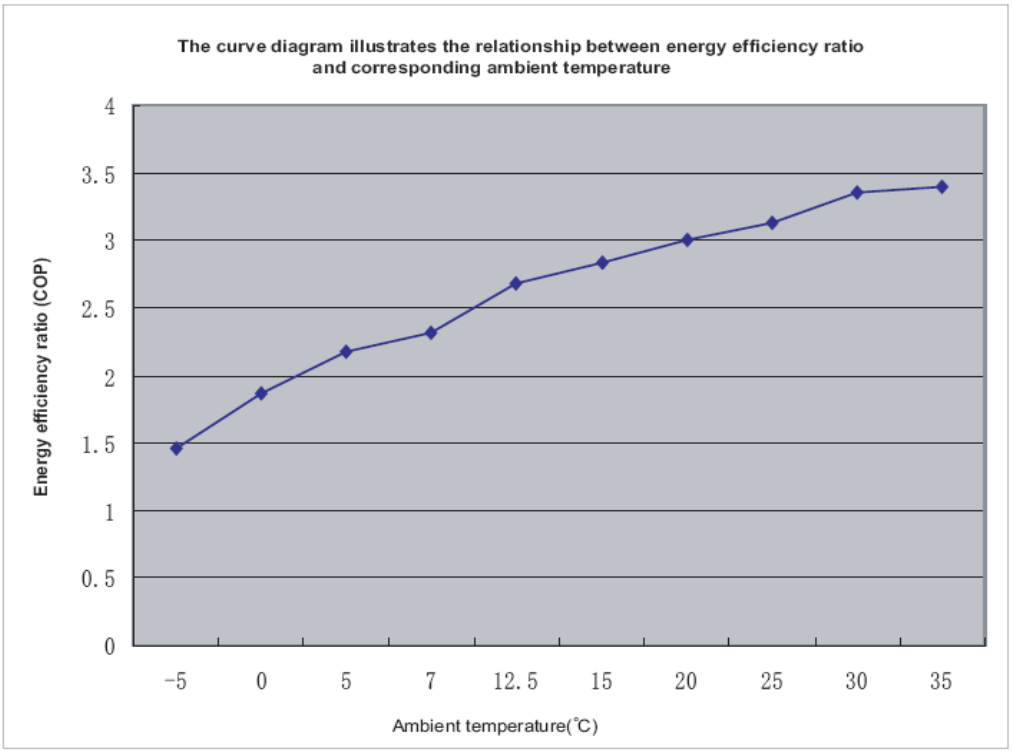
RSJF-35/CN1-A



RSJF-50/CN1-A

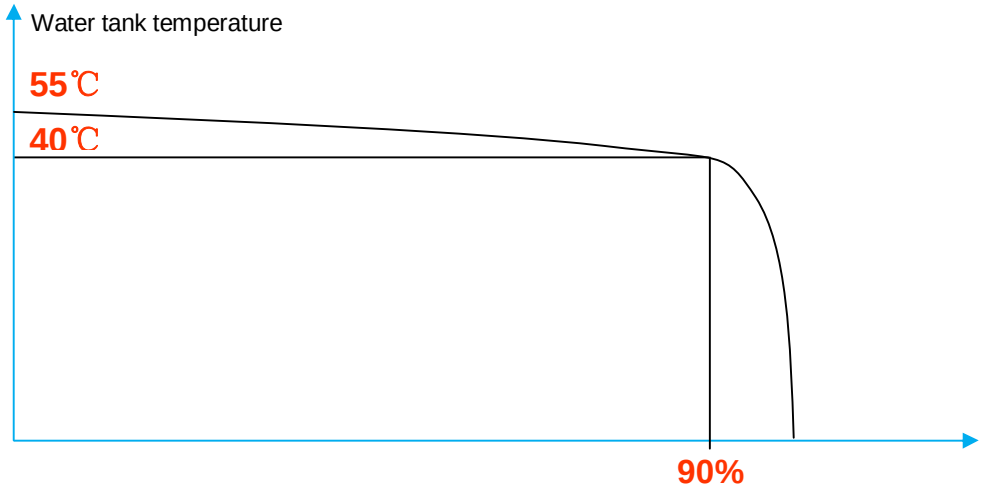


RSJF-65/CN1-A



4. Relationship between Outdoor Ambient Temperature and Outlet Water Temperature

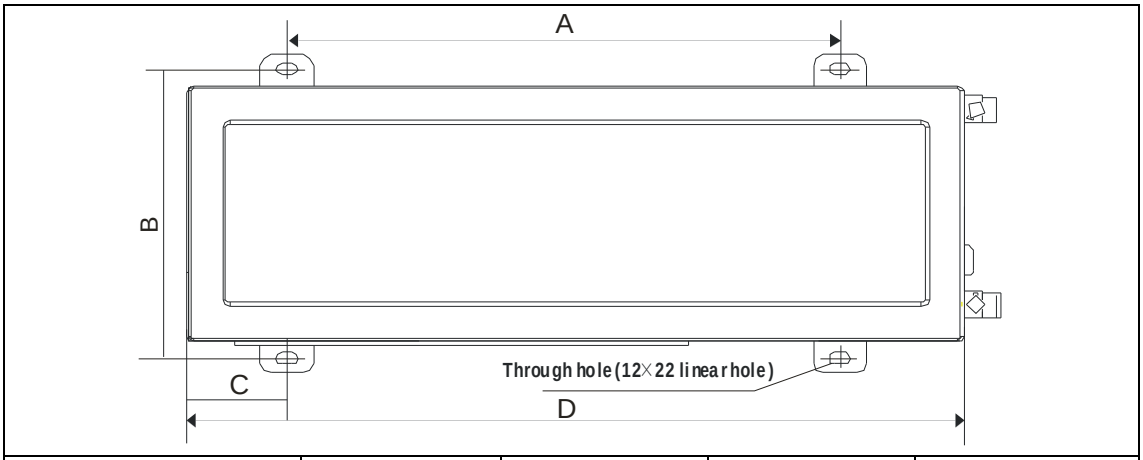
Circulation type unit



Note:

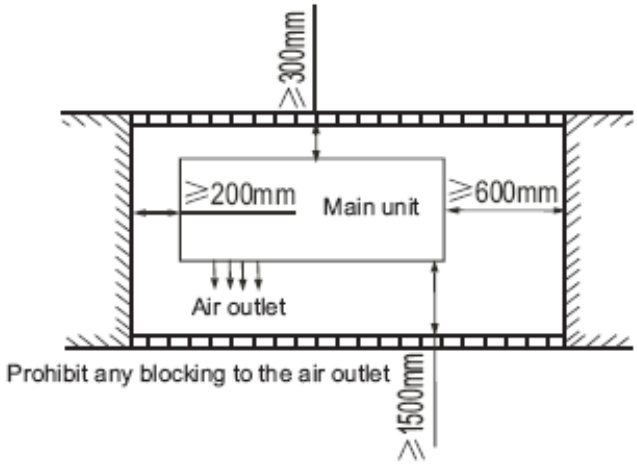
The unit outlet water temperature is under full-automatic control and the water tank is the press type. When the user is using hot water, cold water will be added into the water tank constantly to decrease the temperature. Considering the actual using characteristics, the hot water (above 40 ℃) amount should account 90% of the tank volume.

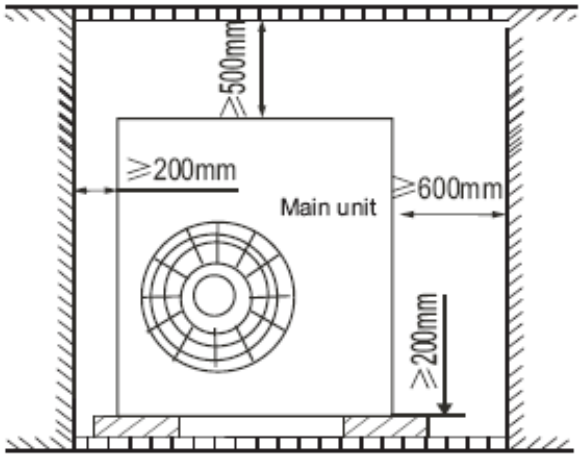
5. Main Unit Foundation Bolt Dimensions



MODEL	A	B	C	D
CE-RSJF-35/CN1-A	563	295	100	790
CE-RSJF-50/CN1-A	563	295	100	790
CE-RSJF-65/CN1-A	563	295	100	790

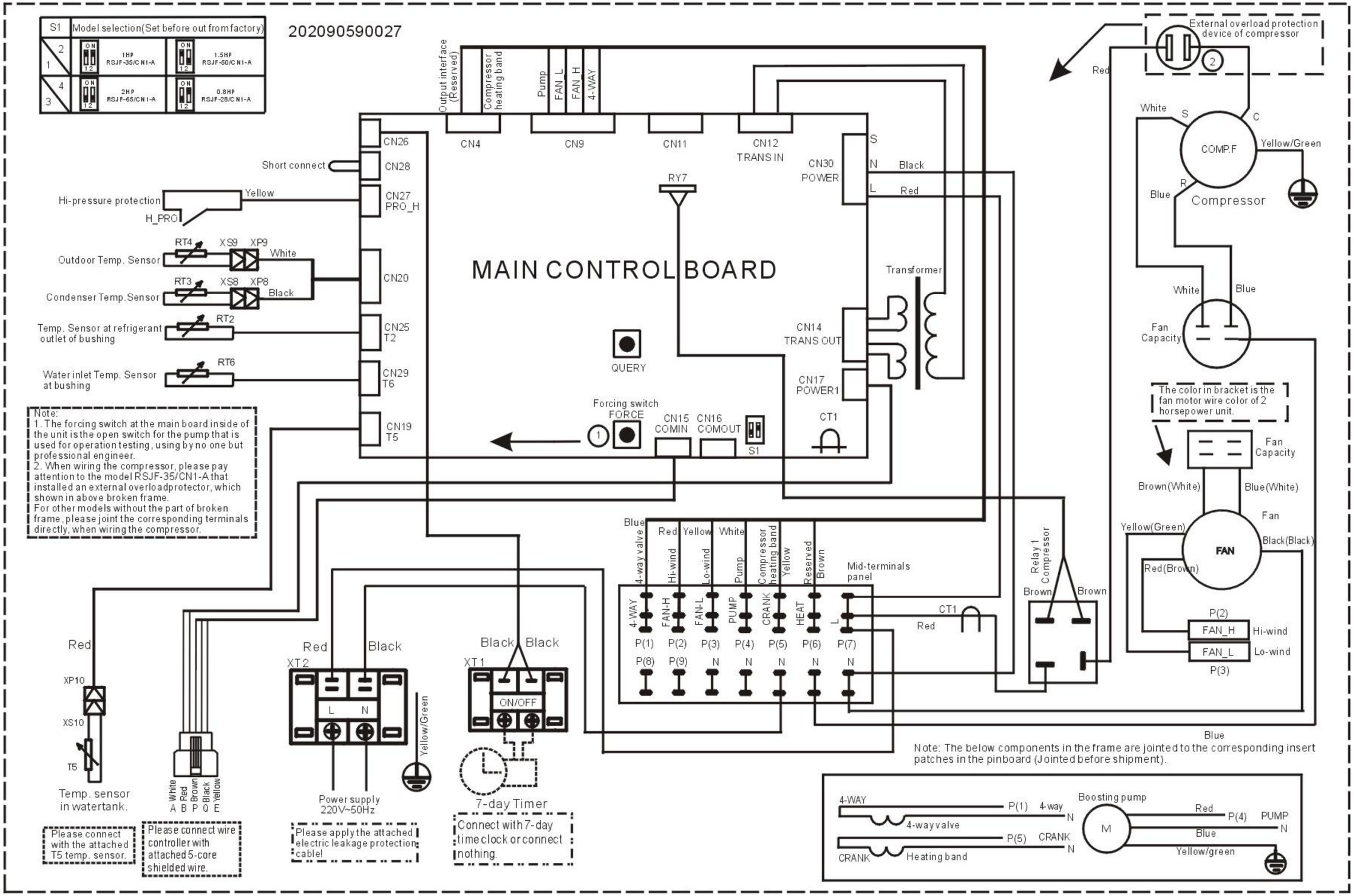
6. Service Space





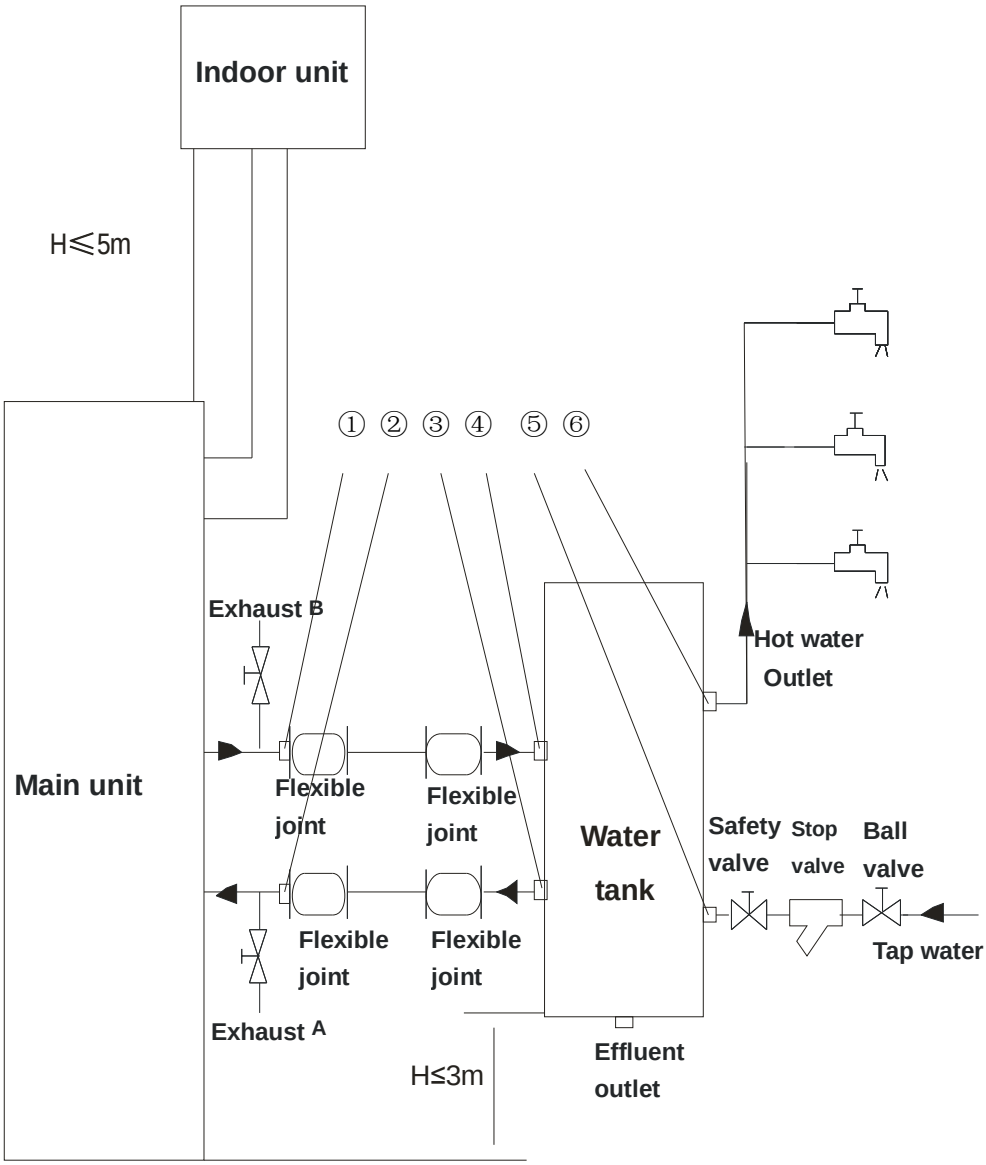
7. Wiring Diagrams

RSJF-35/CN1-A RSJF-50/CN1-A RSJF-65/CN1-A



8. Piping Diagrams

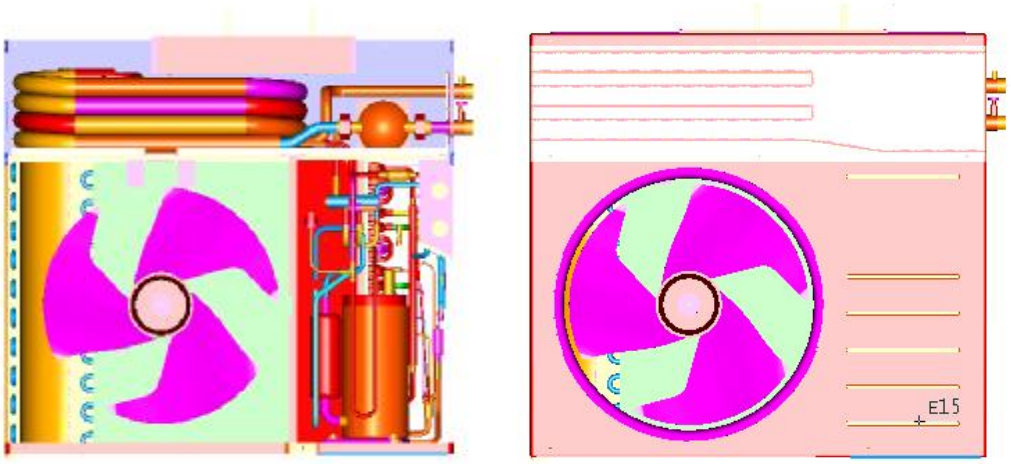
RSJF-35/CN1-A RSJF-50/CN1-A RSJF-65/CN1-A

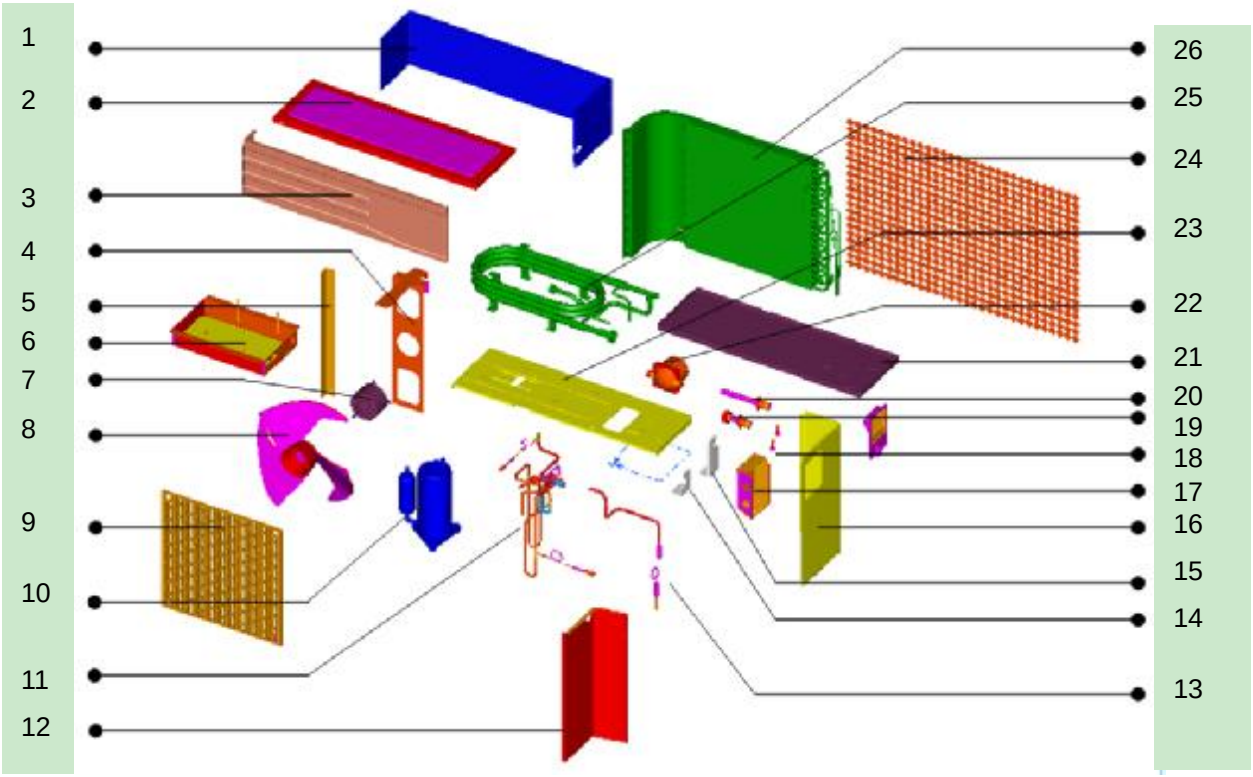


No.	Name	Connective Pipe Specification
1	Main Unit circulating water outlet	DN20
2	Main unit circulating water inlet	DN20
3	Water tank circulating water outlet	DN20
4	Water tank circulating water inlet	DN20
5	Tap water inlet	DN15
6	Water outlet	DN15

9. Exploded View

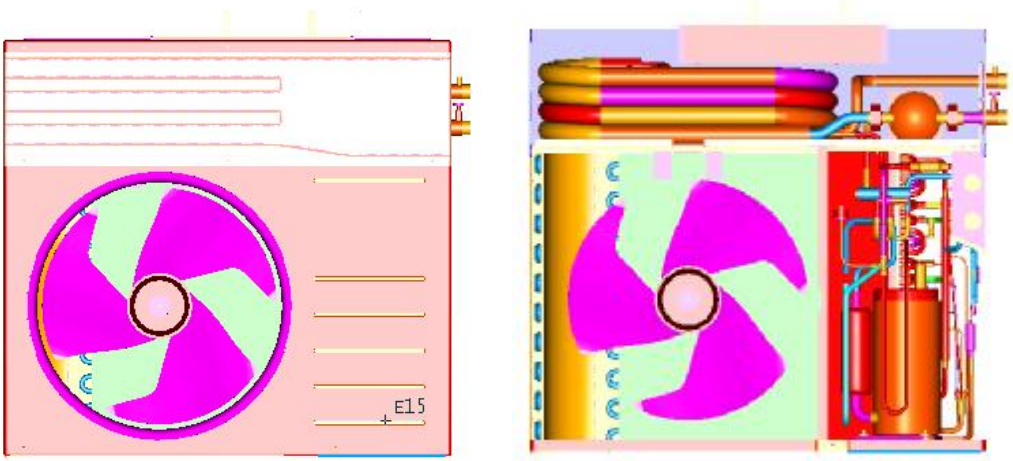
RSJF-35/CN1-A

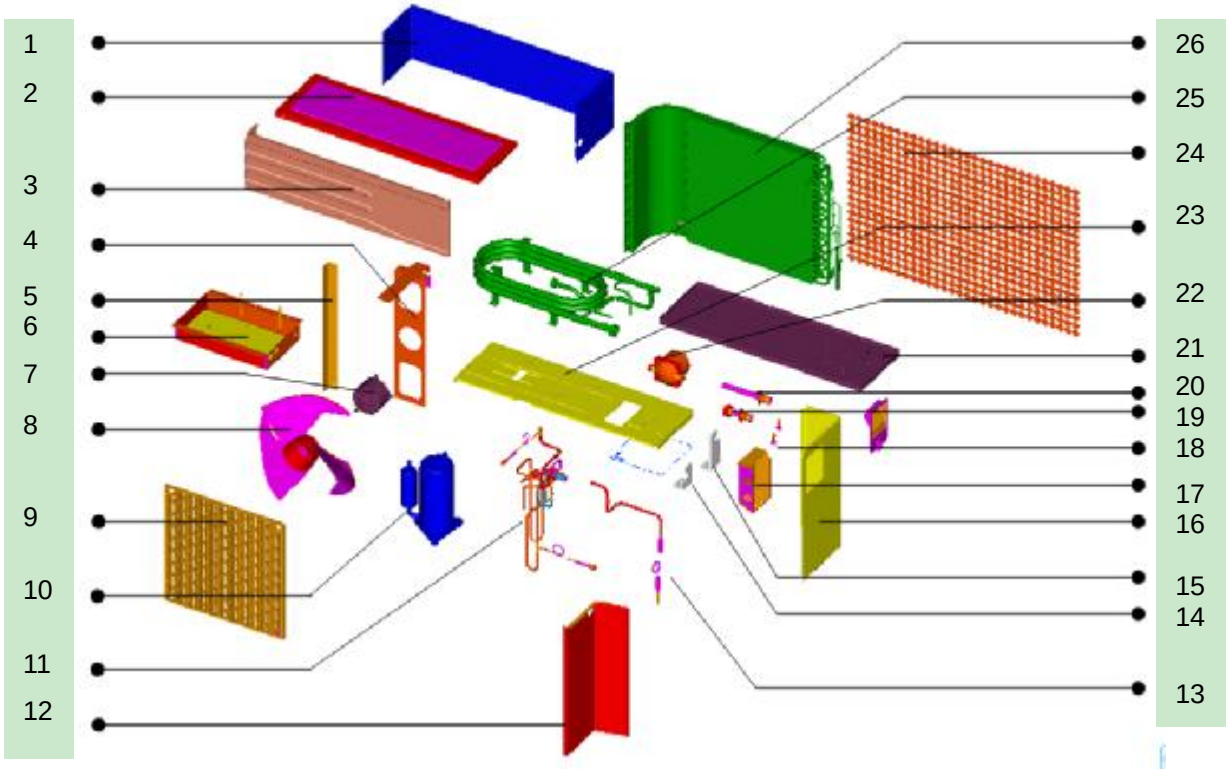




No.	Part Name	Quantity		No.	Part Name	Quantity
1	Top Rear Cover	1		14	Support Ⅰ	1
2	Top Cover	1		15	Support Ⅱ	1
3	Top Front Cover	1		16	Left Panel	1
4	Motor Bracket	1		17	Terminal Installatoin ASSY	1
5	Left Support	1		18	Drain Tie-in	2
6	E-part box ASSY	1		19	Water-in Pipe ASSY	1
7	Fan Motor	1		20	Water-out Pipe ASSY	1
8	Axis Propeller	1		21	Base ASSY	1
9	Discharge Gille	1		22	Water Pump ASSY	1
10	Compressor	1		23	Top Partition Board	1
11	Four Way Valve ASSY	1		24	Rear Net	1
12	Middle Partition Board	1		25	Heat Exchanger(T/T)	1
13	Capillary ASSY	1		26	Condenser ASSY	1

RSJF-50/CN1-A





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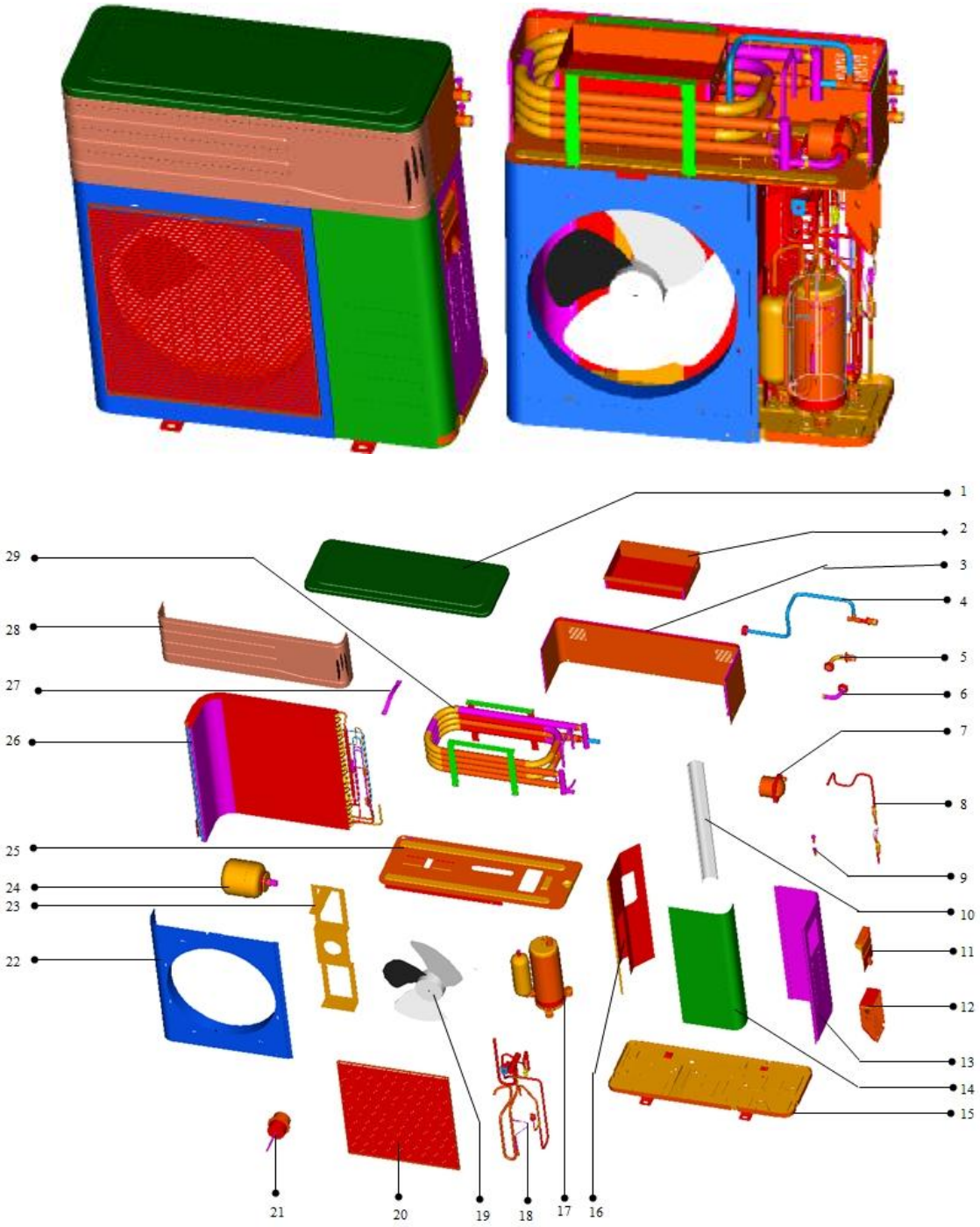
RSJF-65/CN1-A



No.	Part Name	Quantity		No.	Part Name	Quantity
1	Top cover assembly	1		17	Compressor	1
2	Electric controller assy	1		18	4-way valve assembly	1
2.1	Capacitor, compressor	1		18.1	4-way valve	1
2.2	Motor capacitor	1		18.2	Pressure controller	1
2.3	Transformer	1		19	The stalk flows the fan leaf	1
2.4	Delay	1		20	Front net	1
2.5	Maincontroller subassembly	1		21	Fan motor	1
3	Top backside plate	1		22	Inductance	1
4	Thimble water-out subassembly	1		23	Front panel	1
5	Water-in subassembly	1		24	Holder for fan motor	1
6	Thimble water-in subassembly	1		25	Expansive jar	1
7	Pump	1		26	Separating board subassembly	1
8	Capillary pipe subassembly	1		27	Condenser	1
9	Adapter,drain pipe	2		28	Expansive jar fixture	1
10	Left holder	1		29	Come forward the side plank	1
11	Handle	1		30	thimble heat-exchanger	1
12	Terminal installation box subassembly	1		31	evaporator temp sensor	1
13	Rear right clapboard	1		32	Discharge temp sensor assembly	1
14	Front right clapboard	1		33	temp sensor subassembly	1
15	Chassis	1		34	water tank temp sensor	1
16	Separating board	1		35	Wire controller	1

Part 3
Installation

1. Precautions

- Be sure to keep conformity with the local, national and international laws and regulations.
- Read "PRECAUTIONS" carefully before installation.
- The following precautions include important safety items. Read them carefully..
- Keep this manual with the owner's manual where handy for future reference.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.

WARNING

Failure to observe a warning may result in death.

CAUTION

Failure to observe a caution may result in injury or damage to the equipment.

After the installation finished, make sure that the unit is operated properly during the trial operation.

Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should keep this manual for future reference.

WARNING

Only trained and qualified service personnel to install, repair or maintain the equipment.

Improper installation, repair or maintenance may result in electric shock, short-circuit, leaks, fire or other damage to the equipment.

Install the unit according to this installation instructions strictly.

If installation is defective, it will cause water leakage, electrical shock or fire.

Use the attached accessories and specified parts for installation. Otherwise, it may cause the unit to fall, water leakage, electrical shock or fire.

Install the unit at a strong and firm place where is able to withstand the unit's weight. An installation not properly done or in a place not strong enough may result in damage or drop of the unit.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used.

Improper connection or fixing may cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.

Improperly fixed control board cover may cause heat-up at connection point of terminal, fire or electrical shock.

If the supply cord is damaged, it must be replaced by the service agent or qualified person in order to avoid a hazard.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

In some areas, strong winds, typhoons or earthquakes must be taken into account during installation.

Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

The temperature of refrigerant pipe will be high, please keep the interconnection cable away from it.

After the installation finished, check if there is any leakage of refrigerant.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

CAUTION

Earth the water heater.

Do not connect the earthing wire to gas or water pipes, lightning rod or a telephone earthing wire. Incomplete earthing may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, and then connect the indoor unit wires.

It is not allowed to connect the units with the power supply until wiring and piping the units is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Young children should be supervised to ensure that they do not play with the appliance.

Don't install the air conditioner in the following locations:

- Where petrolatum exists.
- Where salty air surrounds (near the coast).
- Where caustic gas (the sulfide, for example) exists in the air (near a hot spring).
- Where the Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen full of oil gas.
- Where strong electromagnetic wave exists.
- Where inflammable materials or gas exists.
- Where acid or alkaline liquid evaporating exists.
- Other special conditions.

2. Installation information

- Before installation, please read this manual at first.
- The HPWH must be installed by qualified personnel.
- When installing the tank or its tubing, please follow this manual as strictly as possible.
- If the HPWH is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- This manual is subject to changes due to technological improvement without further notices.

INSTALLATION ORDER

- Select the location;
- Install the outdoor unit;
- Install the water tank;
- Install the connecting pipe ;
- Connect the drain pipe;
- Wiring;
- Test operation.

3. Accessories

Please check whether the following fittings are of full scope. If there are some spare fittings , please restore them carefully.

Name	Qty	Application
1. Installation and Use Manual	**1**	——
2. Y type filter	**1**	Inlet water filter
3. Wire control assembly	**1**	Control the units and display units status
4. Seal ring	**1**	Seal the drain pipe
5. Drain connecting pipe	**1**	Main unit condensed water drainage
6. Water tank temperature sensor	**1**	Water tank temperature check

Cautions on remote controller installation:

Never throw or beat the controller.

Before installation, operate the remote controller to determine its location in a reception range.

Keep the remote controller at least 1m apart from the nearest TV set or stereo equipment. (it is necessary to prevent image disturbances or noise interferences.)

Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.

Note that the positive and negative poles are right positions when loading batteries.

This manual is subject to changes due to technological improvement without further notices.

4. Inspecting and handling the unit

At delivery, the package should be checked and any damage should be reported immediately to the carrier claims agent.

When handling the unit, take into account the following:

1.  Fragile, handle the unit with care.
    Keep the unit upright in order to avoid compressor damage.
2. Choose on before hand the path along which the unit is to be brought in.
3. Move this unit as originally package as possible.
4. When lifting the unit , always use protectors to prevent belt damage and pay attention to the position of the unit’s centre of gravity.

5. Electrical wiring

5.1 Attention

- The water heater should use the special power supply and the power voltage should be in line with rated voltage..
- The power supply circuit of the water heater should be earthed, the power cord should be connected with the external earthing line in reliable state and all the external earthing cables are effective.
- The construction of the wiring should be carried out by professionals in accordance with the circuit diagram.
- Set up leakage protection devices in accordance with the requirements of the relevant national technical standards.
- The power cord and the signal line should be laid neatly in reason without interfere with each other and should not contact with the connecting pipe and the valves.
- The unit is not equipped with power cord. Please refer to the prescribed power specification for selecting the power cord and connecting between two lines are not allowed.

- Check whether all the connection are correct before powering the unit.

5.2 Power Specification

Item / Model	Power Supply	Min. wire size(mm^2) (Metal pipe &synthetic resin pipe wire)		Manual Switch(A)		RCCB	Model
		Size (Continuous length≤30m)	Earthing	Capacity	Fuse		
RSJ-35/CN1-A	220~240V, 50Hz	1.5	1.5	20	15	30mA, below 0.1 sec	LBC-16-1-CP
RSJ-50/CN1-A	220~240V, 50Hz	1.5	1.5	20	15	30mA, below 0.1 sec	LBC-16-1-CP
RSJ-65/CN1-A	220~240V, 50Hz	2.5	2.5	30	25	30mA, below 0.1 sec	LBC-16-1-CP

Note:

1 The power cord type designation is H07RN-F.

2 Wire size and continuous wire length in the table above only available for the case of the voltage decreasing range not exceeds than 2%.

3 If the continuous wire length value larger than the one of the table, please choose its size in compliance with the relevant rules.

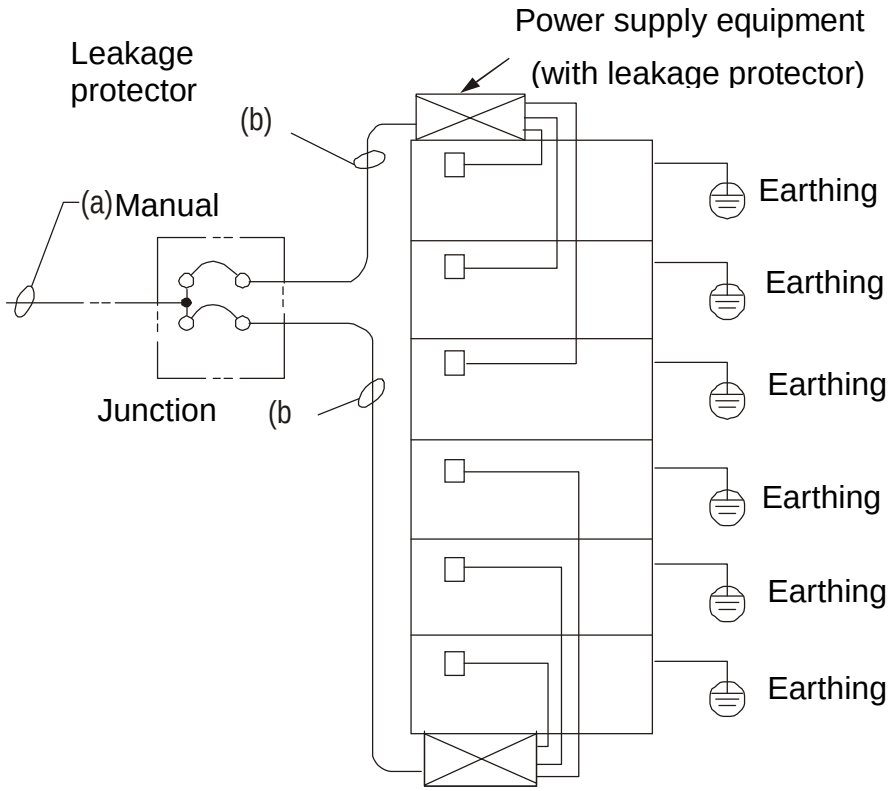
5.3 Cable Size and Pieces

Name	Pieces	Length	Cable Diameter
Water pump power cord	2-core	≤ 50 m	2.5 mm^2
Electric-heating power cord	2-core	≤ 50 m	2.5 mm^2
Circulating water pump power cord	3-core	≤ 50 m	2.5 mm^2
Four-section type water volume controller cord	5-core	≤ 20 m	1.0 mm^2
Communication cord (shielded)	5-core / 3-core	≤ 50 m	0.75 mm^2
Water flow switch cord	2-core	≤ 50 m	1.0 mm^2
Water pressure switch cord	2-core	≤ 50 m	1.0 mm^2
Solenoid valve cord	3-core	≤ 50 m	1.5 mm^2

Note: When the power cord and the controlling wire is parallel, please place the wire in the respective tube and leave suitable distance between the lines.

5.4 Power supply wiring .

A. Power supply equipment application



Note: Although there is a leakage protector in the electric control box of the unit, for the security reason, it is required that a leakage protector should be installed in the external electric control box of the unit according to the requirement on the above diagram.

B. Cable diameter selection

The power supply wiring refers to the wiring to the main line (a) of junction box and the wiring (b) to the power supply equipment. Please select the cable diameter according to the following methods

1) Diameter of the main line (a):

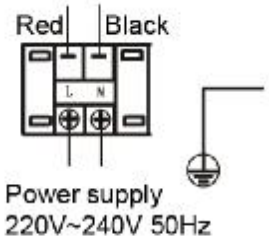
Get from the power supply specification table according to the sum of horsepower of the unit.

2) Diameter of the wiring from the junction box to the power supply equipment:

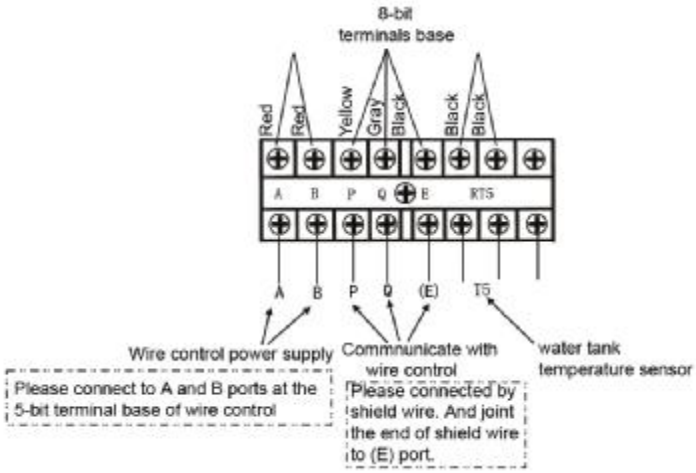
When the water heaters are less than 5 sets, the diameter the wiring from the junction box to the power supply equipment should be the same as the main line (a); when the water heaters are more than 6 sets, the power supply equipment should have two sets of electric control box and the diameter should be get from the power supply specification table according to the sum of horsepower of the units connected by the electric control box.

5.5 Electrical connection diagram.

RSJF-35/CN1, RSJF-50/CN1, RSJF-65/CN1



The part of heavy current



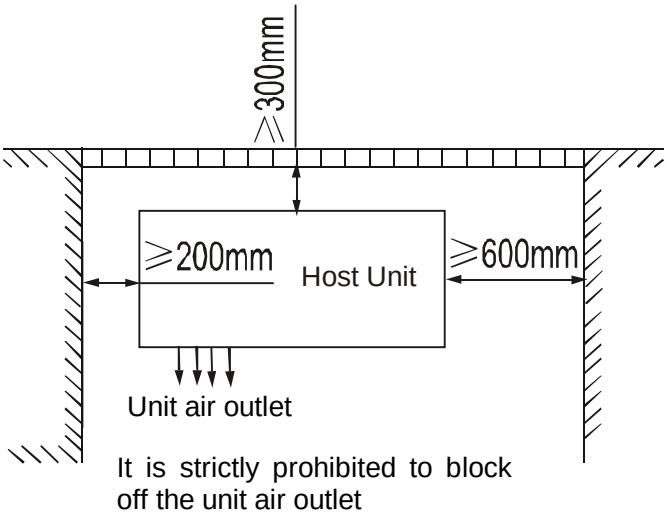
The part of weak current

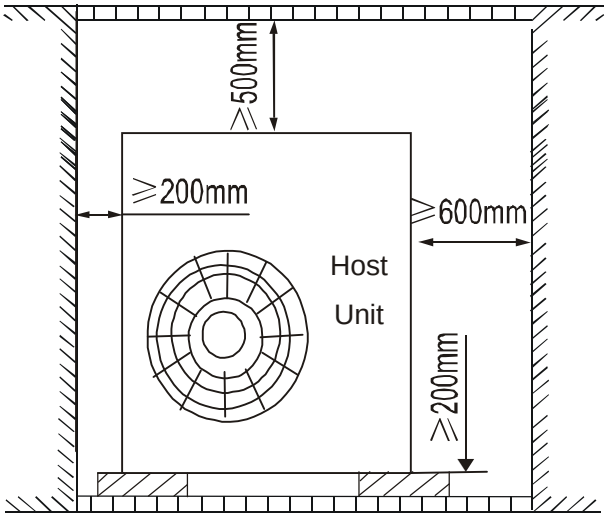
6. Outdoor Unit Installation

Installation space requirement

a. Ensure there is sufficient space for the maintenance of outdoor unit

b. A distance of no less than 200mm should be preserved between the bottom of the outdoor unit and the ground or bracket for the installation of the duct pipe.





c. Distance between anchor bolt is shown as follows

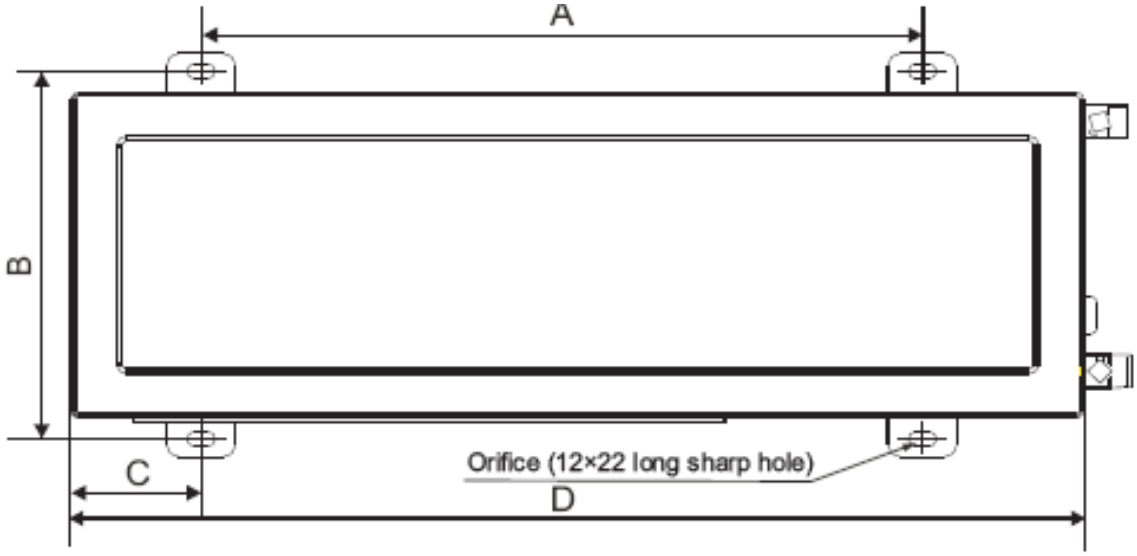
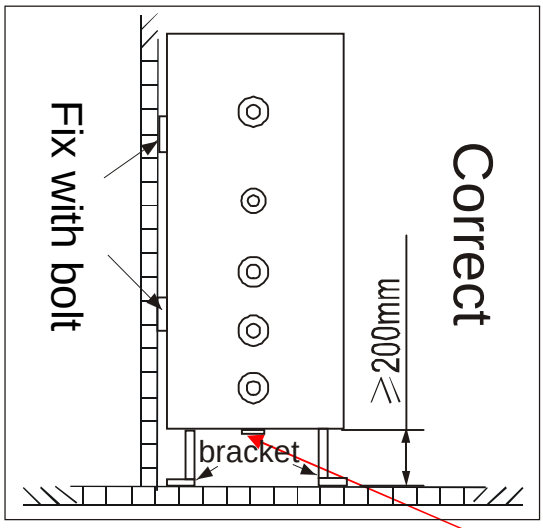


Table: 4-1

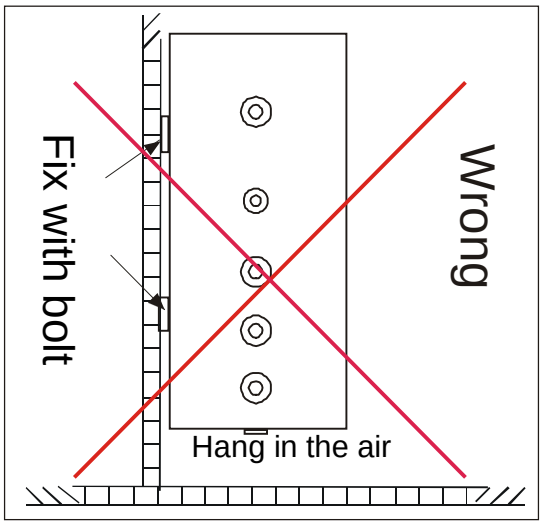
Specification	A	B	C	D
RSJF-35/CN1-A	563mm	295mm	100mm	788mm
RSJF-50/CN1-A	563mm	295mm	100mm	788mm
RSJF-65/CN1-A	560mm	335mm	140mm	840mm

7. Water Tank Installation



Diagraph A

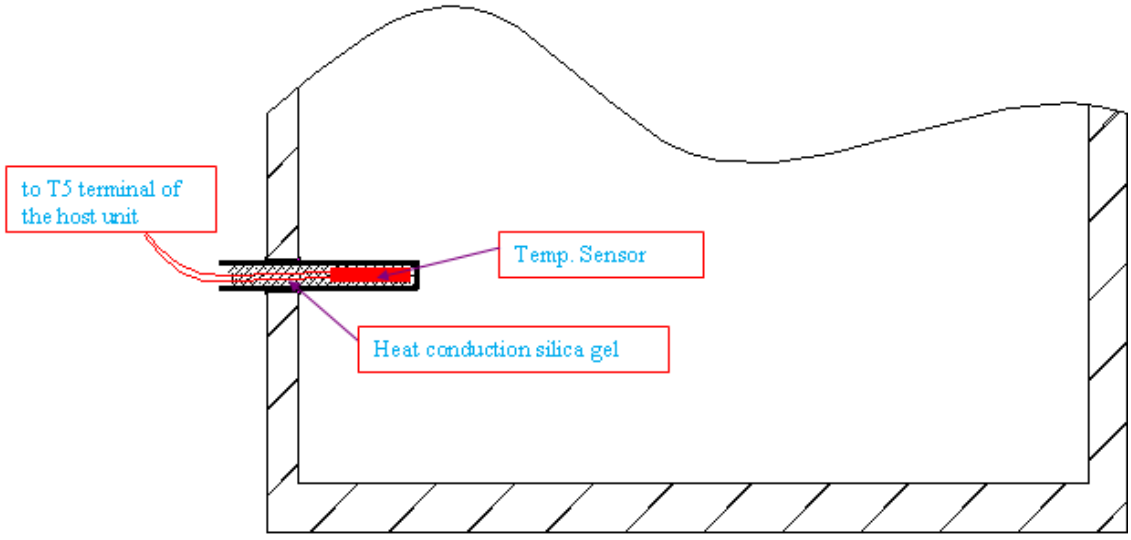
Drain: open by spanner when cleaning the water tank



Diagraph B

Installation of Temp. Sensor

Remark: Please inject half of the heat-conducting silica gel into the blind pipe in the water tank before insert the temp sensor, and make sure the sensor has reached the bottom



8. Water Pipe Installation

8.1 Installation material preparative

Installation Materials		
Name	Qty	Specification and Usage
Water pipe, flexible joint	Decided by the project needs.	Metal, non-metal composite pipes; PPR pipe, polyethylene-aluminium composite pipeline, etc.
Hydraulic gauge	One per unit	Scale 0.2bbar; Measure 8bar
Ball valve	One per unit	Water tank inlet pipeline
Heat preservation material for hot water pipeline	According to the length of the hot water pipeline.	Heat preservation material for hot water pipeline
Heat preservation material for refrigerant pipeline	According to the length of the refrigerant pipeline.	Heat preservation material for refrigerant pipeline
Electric Control Box	One	Power supply connection; Install the wired controller, ammeter, etc.

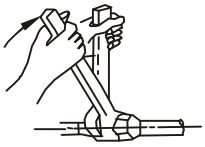
8.2 Remark:

a. The pipe length between host unit and water tank should be limited within 5m, and the latitude difference 3m. If exceeded, they might lead to overloaded water pump, insufficient circulating water and host unit high pressure protection.

b. The Aluminium-plastic or PPR pipes are recommended for connection and should be wrapped with heat insulation layer and protection layer like thin Al sheet and plain galvanized steel sheet in case of exposure

c. Connection and installation of the unit pipeline

When connecting the inlet and outlet pipeline of the unit, use two pipeline grips to vice the two parts that should be connected together to ensure that the inlet and outlet pipelines will not rotate (see diagram below).

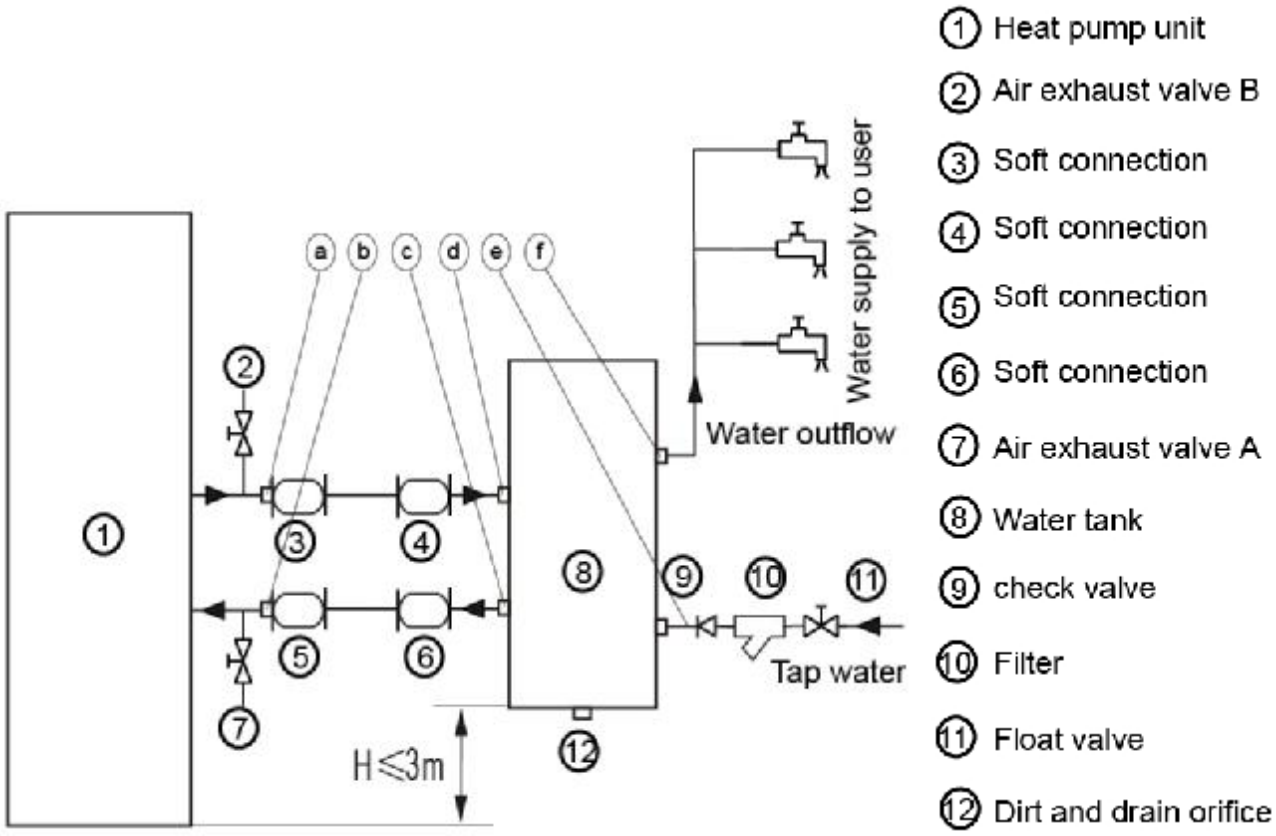


d. Prevent the air, dust or other impurities entering the pipeline system when installing the connecting pipe.

e. The water inlet and outlet pipeline can not be installed until the water heater is fixed well.

f. The water outlet pipe must be enveloped by thermal insulation material.

8.3 Connecting diagram of the water heater



No	Name	Connective pipe specification
a	Circulating water outlet of main unit	DN20
b	Circulating water inlet of main unit	DN20
c	Circulating water outlet of water tank	DN20
d	Circulating water inlet of water tank	DN20
e	Cold water inlet	DN15
f	Heat water outlet	DN15

Part 4
Trial Operation

1. Confirmation before the trial operation

1.1 All the installation is complete.

1.2 Water heater is installed correctly.

1.3 The pipelines and wiring are correct.

1.4 The accessories are installed correctly.

1.5 The drainage is smooth.

1.6 The thermal insulation is sound.

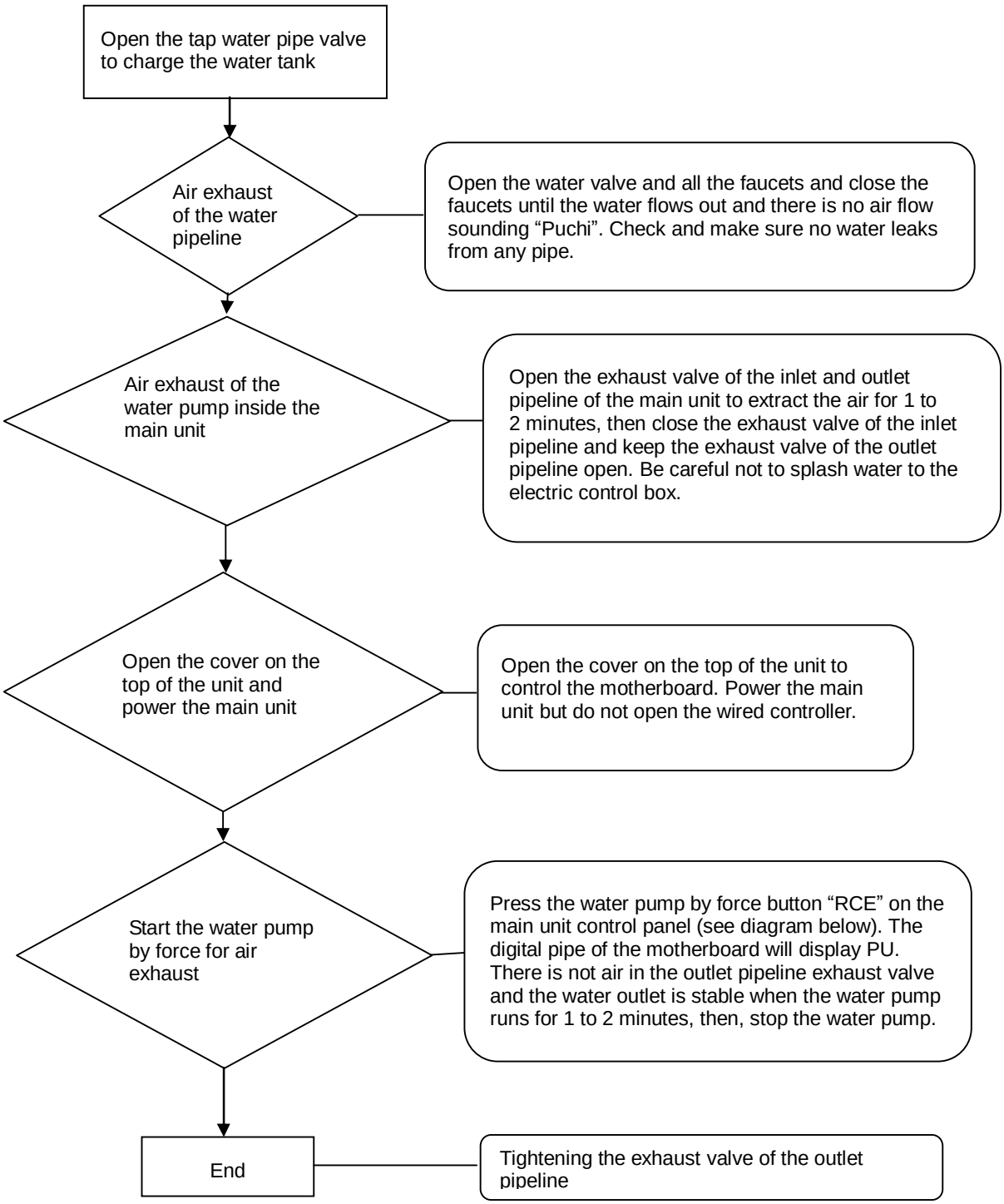
1.7 The earthing wire is connected correctly.

1.8 The power voltage is consistent with the rated voltage of the heater.

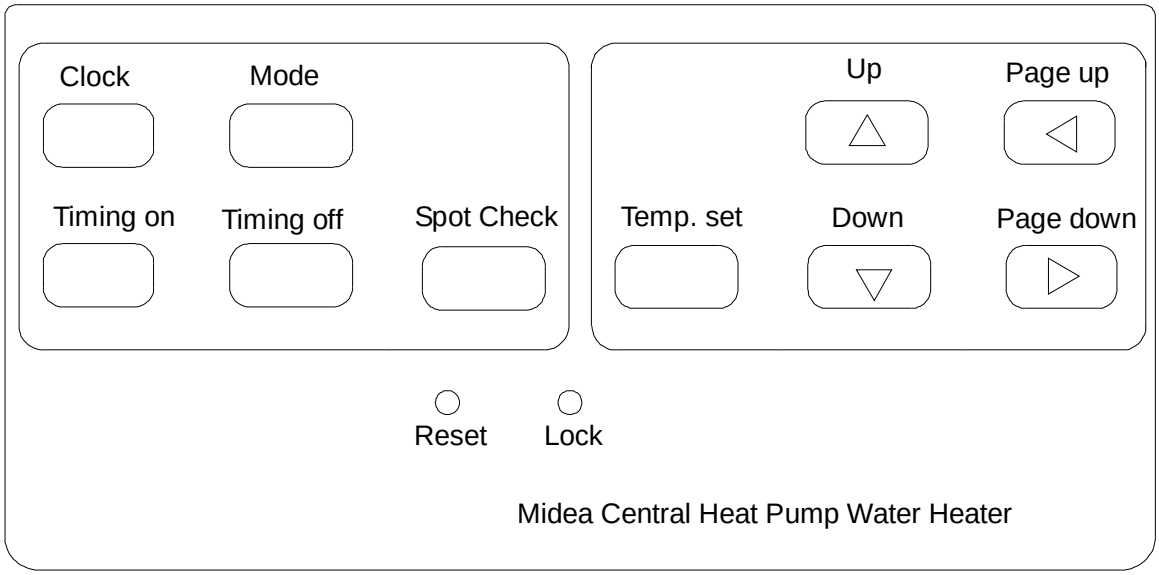
1.9 No obstacle at the air inlet and outlet of the unit.

1.10 The leakage protector can work effectively.

2. Water Tank water resupplying and Water Pipe and Pump Air Exhaust (Artesian Pressure Water Tank)



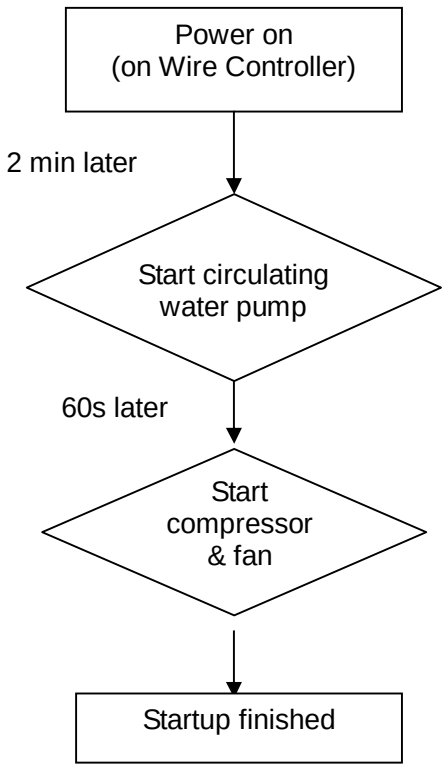
3. Wire Controller KJR-17B/BE



Function:

- Auto Startup Timed Startup Manual Startup
- Water Temp. Set
- Water Temp. Display Spot Check
- Power-down Memory

4. Startup Process



5. Trial Operation Check

Control the water heater operation by wired controller (from accessory) and check the following items in accordance with the User's Manual (If any error, please eliminate it according to the error code explanation and analysis in the end of this manual.):

5.1 Whether the wired controller switch is normal.

5.2 Whether the functional buttons of the wired controller are normal.

5.3 Whether the indicators light up normal.

5.4 Whether the manual operation button is normal.

5.5 Whether the drainage is normal.

5.6 Test whether the unit operates normally in the heating mode.

5.7 Whether the outlet water temperature is normal.

5.8 Whether there is vibration or abnormal sound when operating.

5.9 Whether the wind, noise and condensed water would affect neighbors.

5.10 Whether there is refrigerant leakage.

6. Corresponding Operation Explanation

6.1 About the Three-minute Protection

If you re-run the unit or turn on the manual switch after the unit stops, the unit will not start within three minutes because of the self-protection function of the compressor.

6.2 Auto Adjustment of Fan Motor

If the ambient temperature is high when the unit is operating, the fan motor of the unit might be on the low-wind operation.

6.3 Defrosting in the Air Supply Operation

When there is frosting phenomenon during the heat supply, the defrosting will operate automatically to improve the heating effect (about 2-10 minutes).

The fan motor will stop running when defrosting.

6.4 Operation Condition

For the proper use of water heater, please operate at the outdoor temperature -7 ℃ ~ 43 ℃. Since there are fine electronic components inside the unit, it is strictly prohibited to use the water directly from the lake and river or the untreated groundwater.

6.5 About Power off

A All operations stop when the power is off.

B The operation indicator of the wired controller will flash slowly for several seconds for notifying re-start after power off.

C If any error action is made in the operation because of the lightning or car radio, cut off the manual power switch, re-start and press the On/Off button again.

6.6 Power-down Memory

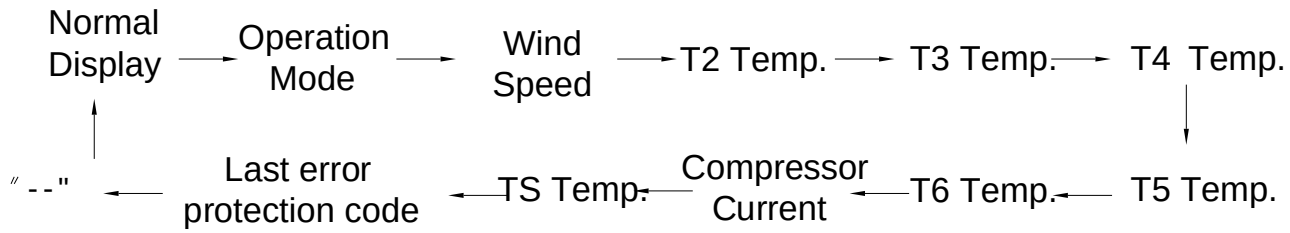
The wired controller will memory the unit state automatically before power-down of the unit or the wired controller and the wired controller will send the On/Off signal to the water heater according to the memory before power-down to ensure that the unit will operate according to the originally set state after recover.

7. Error Code Explanation and Analysis

Code	Code Explanation	Cause Analysis	Solution
E2	Communication failure	Communication failure between the main unit and the wired controller	Connect the main unit with the A, B, P, Q and E lines of the wired controller correctly.
		Electromagnetic interference because communication line is not the shielded line	Replace the communication line with the shielded line.
		Damage of the sensor	Replace the sensor
E4	Water temp.sensor failure in the water tank	The T5 port between the sensor and the motherboard is loose	Insert the port well.
		Sensor damage	Replace the sensor.
E5	Condenser Temp. sensor failure	The T3 port between the sensor and the motherboard is loose	Insert the port well.
		Sensor damage	Replace the sensor.
E6	Outdoor ambient temp. sensor failure	The T4 port between the sensor and the motherboard is loose	Insert the port well.
		Sensor damage	Replace the sensor.
E7	Sensor failure at water pump outlet	The T6 port between the sensor and the motherboard is loose	Insert the port well.
		Sensor damage	Replace the sensor.
Ed	Sensor failure at the double-pipe refrigerant outlet	The T2 port between the sensor and the motherboard is loose	Insert the port well.
		Sensor damage	Replace the sensor.
		Leakage of refrigerant	Check the leaking place, mend by welding, exhaust the air and add refrigerant again.
P1	System high pressure protection	The circulating pipe between the water tank and the main unit is too small	Use the DN 20 pipe
		The circulating pipe between the water tank and the main unit is too long	The length of the connecting pipe should be ≤ 5 m
		The height difference between the water tank and the main unit is too large	The height difference should be ≤ 3 m
		There is air in the water pump	Exhaust the air (see Chapter Three)
		The water pump is not started	Check whether the water pump is damaged
		The capillary is blocked off (small possibility)	Weld the capillary and add refrigerant. Blow it clear by high pressure air or replace it.
		No water in the water tank and the tap water supply is stopped	Shut down the unit and start until the tap water supply recovers to be normal
P2	System current protection	The circulating pipe between the water tank and the main unit is too small	Use the DN 20 pipe
		The height difference between the water tank and the main unit is too large	The height difference should be ≤ 3 m
		There is air in the water pump	Exhaust the air
		The water pump is not started	Check whether the water pump is damaged
		The capillary is blocked off (small possibility)	Weld the capillary and add refrigerant. Blow it clear by high pressure air or replace it.
P8	Protection for the over-high temperature at the outlet of the condenser (T2 ≥ 60 ℃)	Water pump is not started	Cut off the power supply, remove the bolt on the back of the water pump and turn the water pump axis
		There is air in the water pump	Exhaust the air
		The water pump is not started	Check whether the water pump is damaged
Pb	Anti-freezing protection	Prevent PTE cracking by freezing in the winter	Normal protection, no need for treatment.

8. Spot Check

Main Control Board Spot Check



Wire Controller Spot Check

Outlet Temp. T1 -> Outdoor Pipe Temp. T3 -> Ambient Temp-> Compressor A Current -> Compressor B Current-> Error-> Error Protect