Content

Part 1 General information

1. Important notice

- **When 18K and 24k unit are turned off, it will take 8 minutes to restart.**
- **When 36K, 48K, 60K, 96K and 150K unit are turned off, it will take 3 minutes to restart.**

2. Specifications

Model			RCF-50o	RCF-70o	RCF-100o	RCF-140o
Capacity	Cooling	kBtu/h	18	24	36	48
Power supply		V-Hz-Ph	220-240,50,1	220-240,50,1	220-240,50,1	380-415,50,3
Compressor Brand		Hitachi	HITACHI	HITACHI	Panasonic	Panasonic
Performance	Air flow volume	m3/h	2800	3800	4800	5600
	Noise level	dB(a)	53	57	58	60
Refrigerant	Type		R410A	R410A	R410A	R410A
	Charge volume		1250	2100	2500	2100
Net dimension	W×H×D	mm	866×535x304	930×700x370	960×x840x390	1070×995x400
Packing dimension	W×H×D	mm	920×x585x335	990×x770x410	1030×950x435	1145×1120x475
Net weight		Kg	39	53	77	88
Gross weight		Kg	41	56	86	96
Qty'Per' 20'/40'/40'HQ	Outdoor	pieces	100/200/208	70/140/144	40/80/80	32/64/64
Pipe diameter	Liquid side	mm	Φ6.35	Φ9.52	Φ9.52	Φ9.52
	Gas side	mm	Φ12.7	Φ15.88	Φ15.88	Φ19.05
	Max. pipe length	m	15	20	20	20
	Max. difference in level	m	8	10	10	10

Notes:

1)The cooling conditions: indoor temp.: 27˚C DB (80.6˚F), 19˚C WB (60˚F) outdoor temp.: 35˚C DB (95˚F) equivalent pipe length: 5m drop length: 0m.

2)The heating conditions: indoor temp.: 20˚C DB (68˚F), 15˚C WB (44.6˚F) outdoor temp.: 7˚C DB (42.8˚F) equivalent pipe length: 5m drop length: 0m.

3)Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

4)The above data may be changed without notice for future improvement on quality and performance.

Model			RCF-160o	RCF-280o	RCF-450o
Capacity	Cooling	kBtu/h	18	24	36
Power supply		V-Hz-Ph	380-415,50,3	380-415,50,3	380-415,50,3
Compressor Brand		Hitachi	Panasonic	Panasonic	Panasonic
Performance	Air flow volume	m3/h	6000	12000	18000
	Noise level	dB(a)	60	63	65
Refrigerant	Type		R410A	R410A	R410A
	Charge volume		3600	9500	12000
Net dimension	W×H×D	mm	911×1330x400	974×x1618x766	1264×1618x766
Packing dimension	W×H×D	mm	964×1445x402	1030×x1750x825	1315×1750x825
Net weight		Kg	96	194	234
Gross weight		Kg	107	200	241
Qty'Per' 20'/40'/40'HQ	Outdoor	pieces	32/64/64	24/54/54	10/21/21
Pipe diameter	Liquid side	mm	Φ9.52	Φ12.7	Φ12.7
	Gas side	mm	Φ19.05	Φ25.4	Φ28.6
	Max. pipe length	m	20	50	50
	Max. difference in level	m	10	20	20

Notes:

1)The cooling conditions: indoor temp.: 27˚C DB (80.6˚F), 19˚C WB (60˚F) outdoor temp.: 35˚C DB (95˚F) equivalent pipe length: 5m drop length: 0m.

2)The heating conditions: indoor temp.: 20˚C DB (68˚F), 15˚C WB (44.6˚F) outdoor temp.: 7˚C DB (42.8˚F) equivalent pipe length: 5m drop length: 0m.

3)Sound level: Anechoic chamber conversion value, measured at a point 1 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of ambient conditions.

4)The above data may be changed without notice for future improvement on quality and performance.

3. External appearance

18k Btu/h

24k Btu/h

36k Btu/h

48k Btu/h

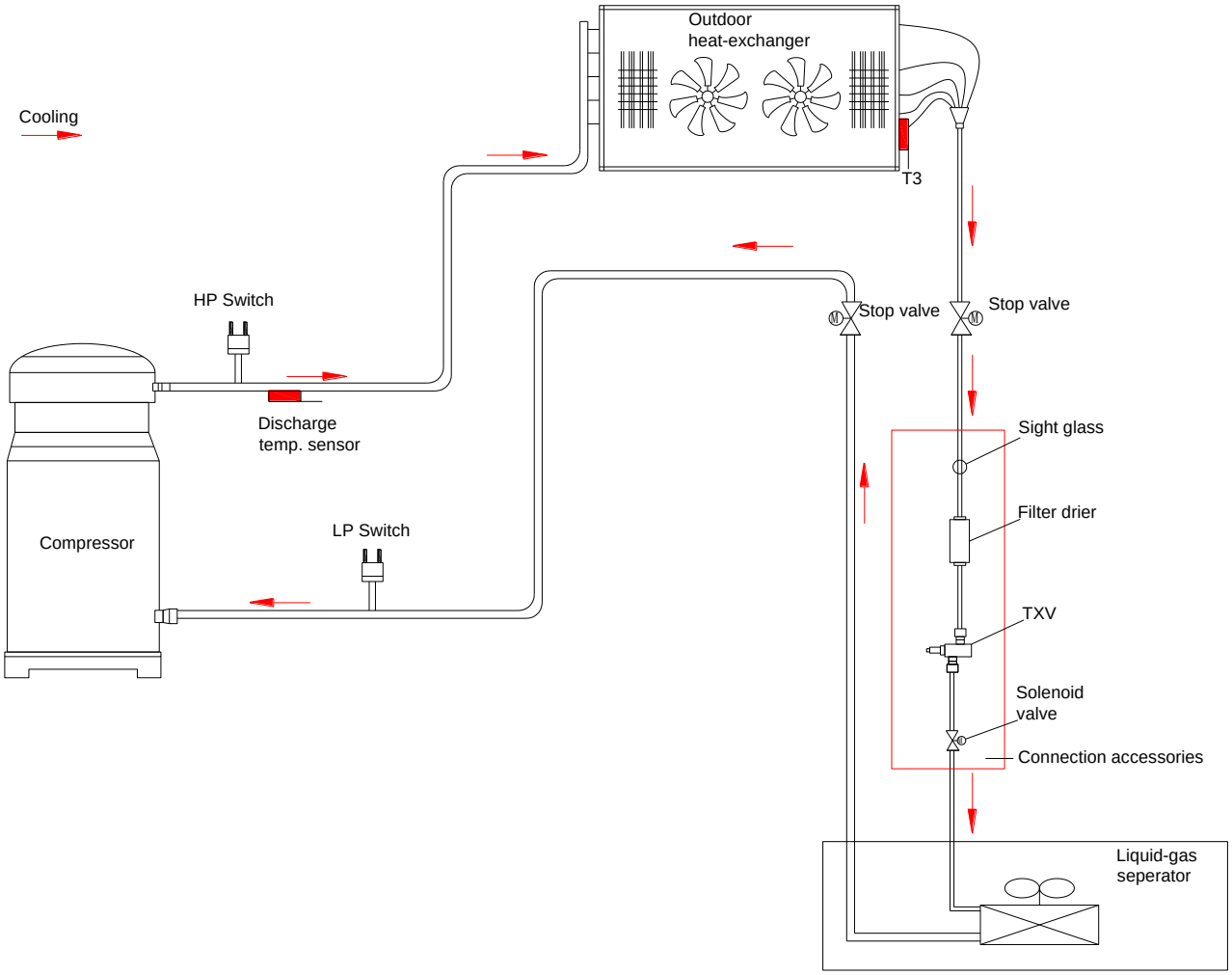
60k Btu/h

96k Btu/h

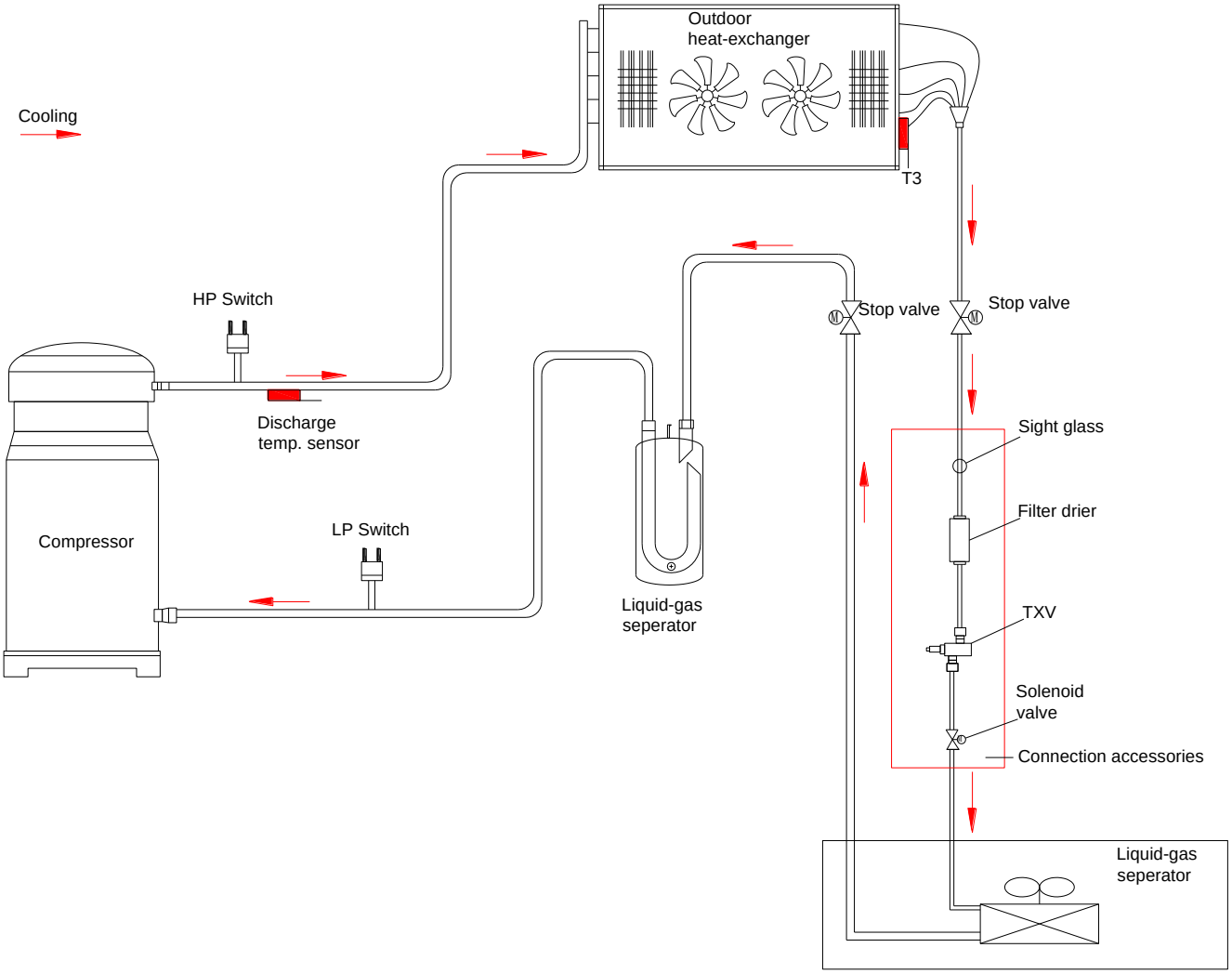
150k Btu/h

4. Refrigerant cycle diagram

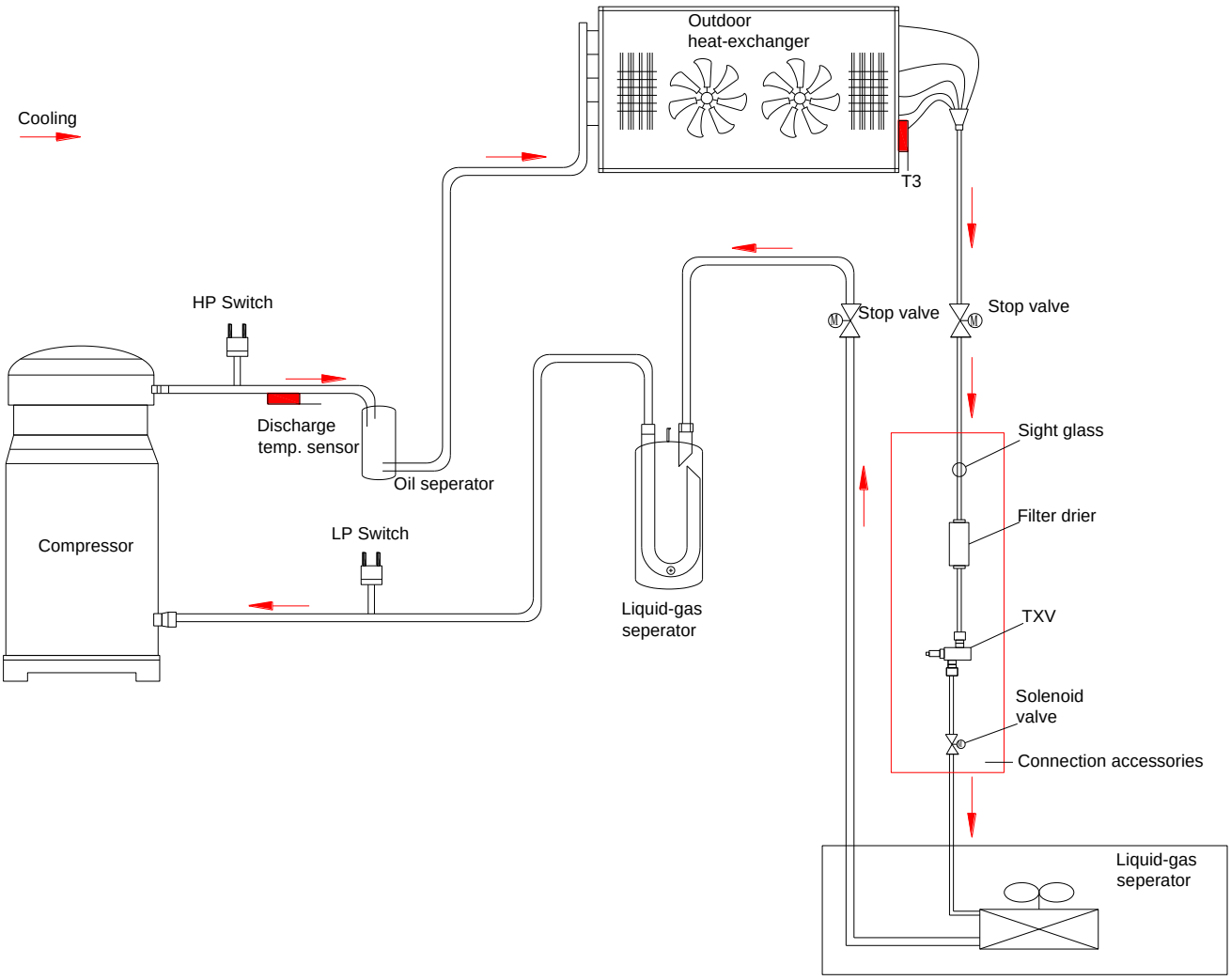
18, 24, 36,48kBtu/h



60kBtu/h


Outdoor
heat-exchanger
Cooling
T3
HP Switch
Stop valve
Stop valve
Discharge
temp. sensor
Sight glass
Filter drier
Compressor
LP Switch
TXV
Liquid-gas
seperator
Solenoid
valve
Connection accessories
Liquid-gas
seperator

96，150kBtu/h



5. Connection accessory list

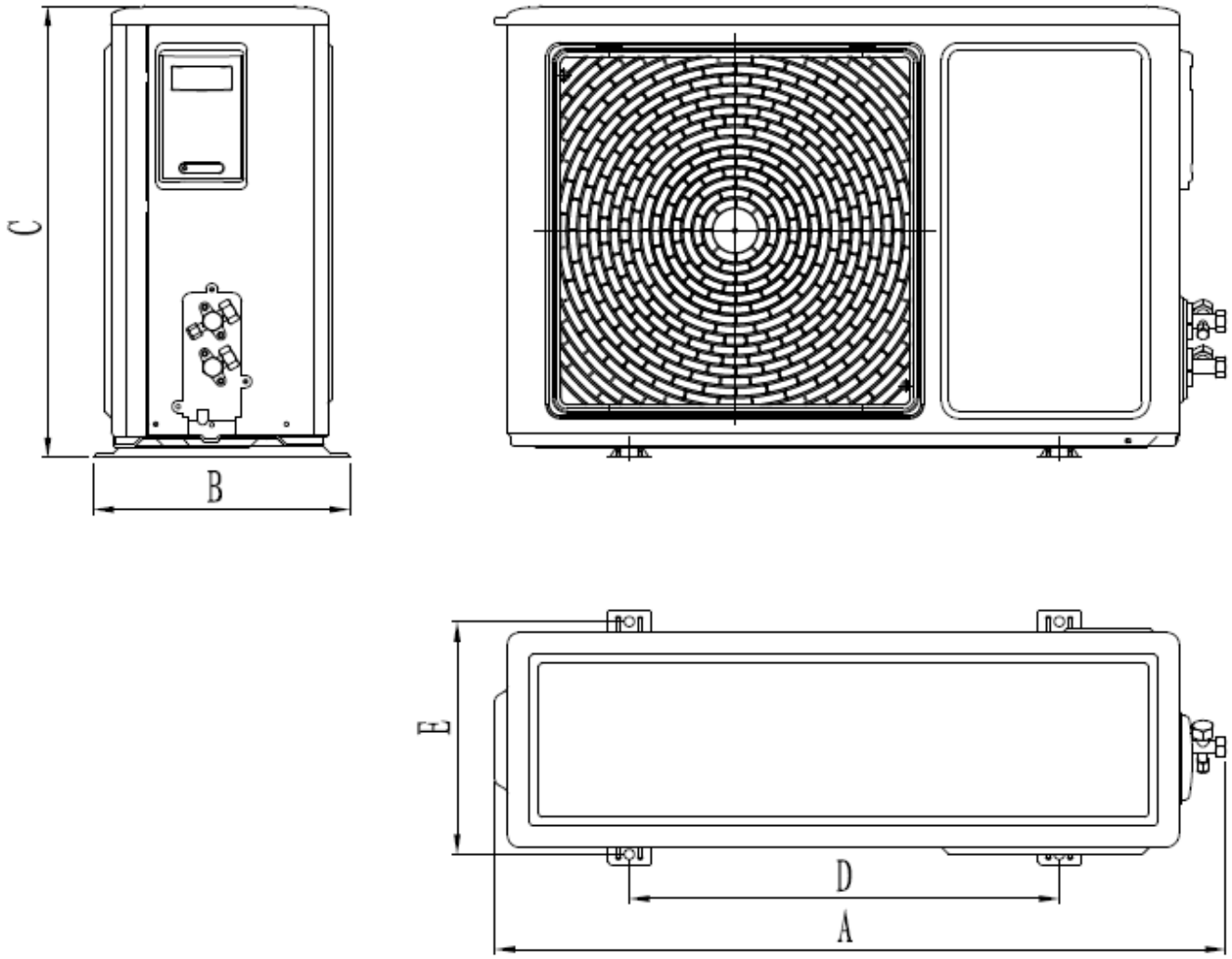
Capacity	Outdoor unit		Expansion valve		Filter drier		Sight glass	
	Sale model	Qty.	Model	Qty.	Model	Qty.	Model	Qty.
18kBtu/h	RCF-50o	1	BAE 1 ½ Zw 195	1	DTG63016-3C	1	SGI+10S	1
24kBtu/h	RCF-70o	1	BAE 2 Zw 195	1	DTG63016-3C	1	SGI+10S	1
36kBtu/h	RCF-100o	1	BAE 3 Zw 195	1	DTG63008-4C	1	SGI+12S	1
48kBtu/h	RCF-140o	1	BAE 3 ½ Zw 195	1	DTG63016-3C	1	SGI+10S	1
60kBtu/h	RCF-160o	1	BAE 4 ½ Zw 195	1	DTG63008-4C	1	SGI+12S	1
96kBtu/h	RCF-280o	1	BAE 7 ½ Zw 195	1	DTG63008-4C	1	SGI+12S	1
150kBtu/h	RCF-450o	1	BAE 12 Zw 195	1	DTG63016-5C	1	SGI+16S	1

Recommended supplier:

- Thermal expansion valve: EMERSON
- Dry filter: Sanhua
- Sight glass: Danfoss

6. Dimensions

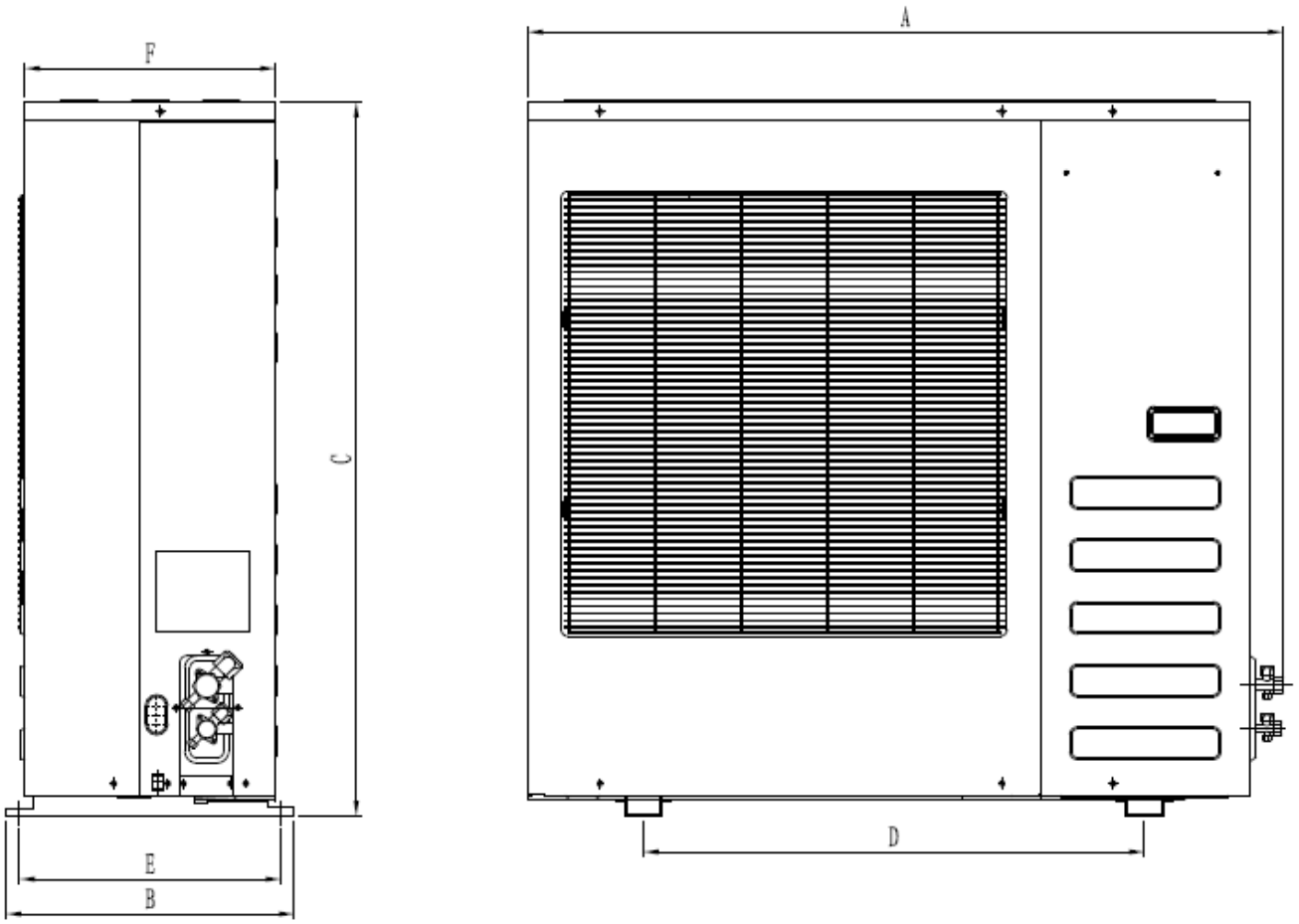
a) 18/24/36 KBtu/h



Unit: mm

Items / Model (kBtu/h)	A	B	C	D	E
18	866	304	535	510	280
24	930	370	700	590	340
36	960	390	840	600	390

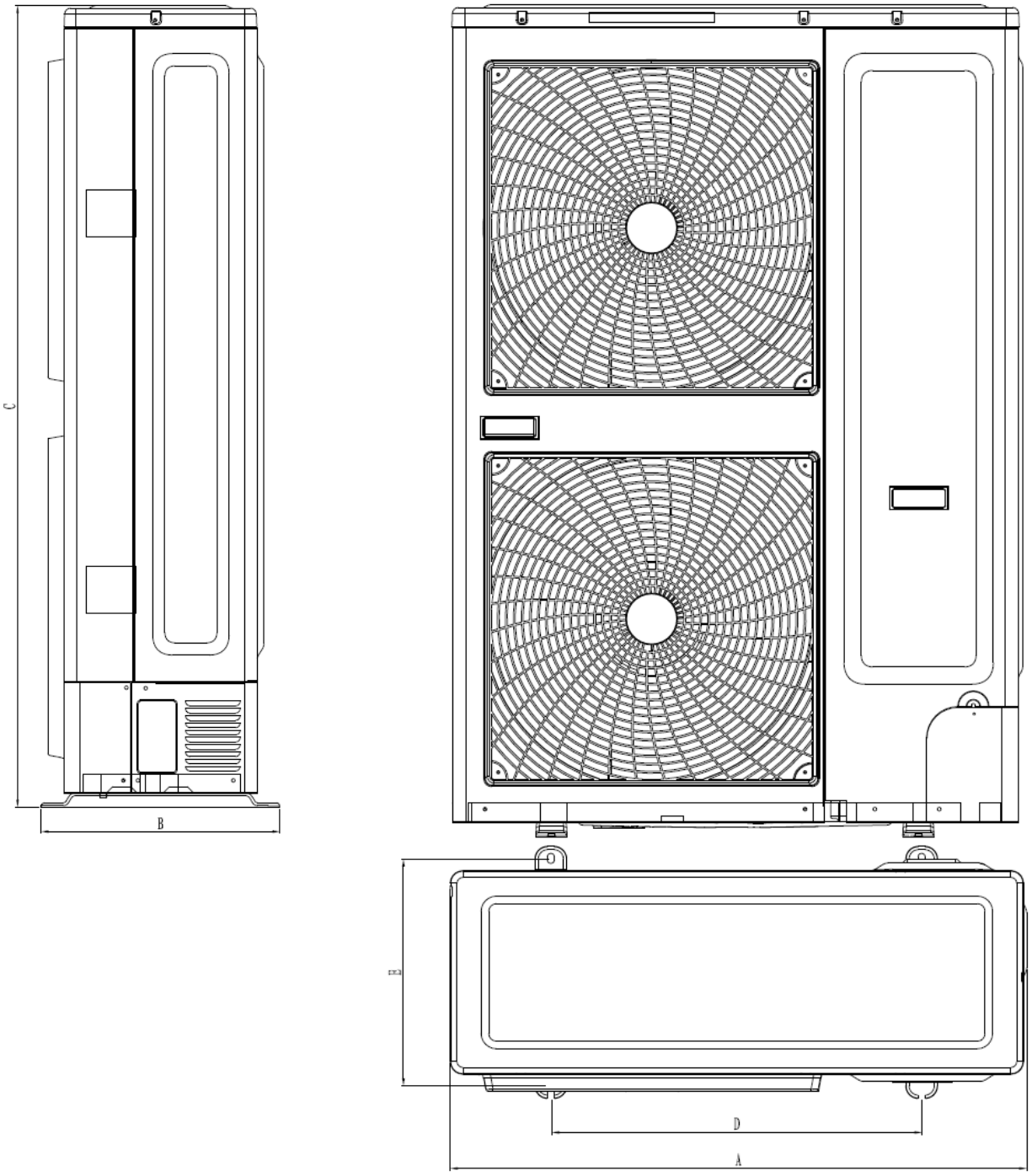
b) 48 kBtu/h



Unit: mm

Items / Model (kBtu/h)	A	B	C	D	E	F
48	1070	400	995	700	380	347

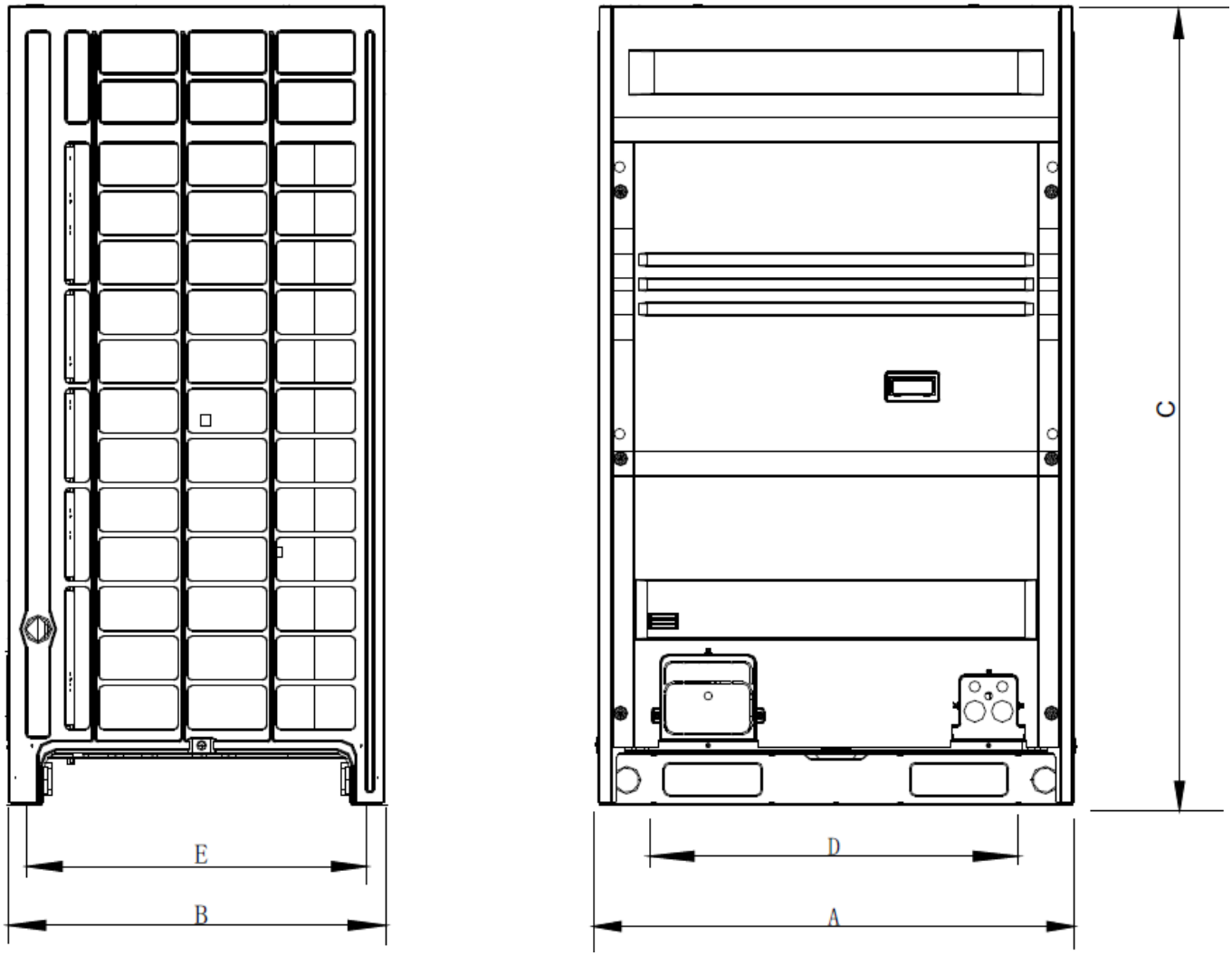
c) 60 kBtu/h



Unit: mm

Items / Model (kBtu/h)	A	B	C	D	E
60	911	400	1330	585	360

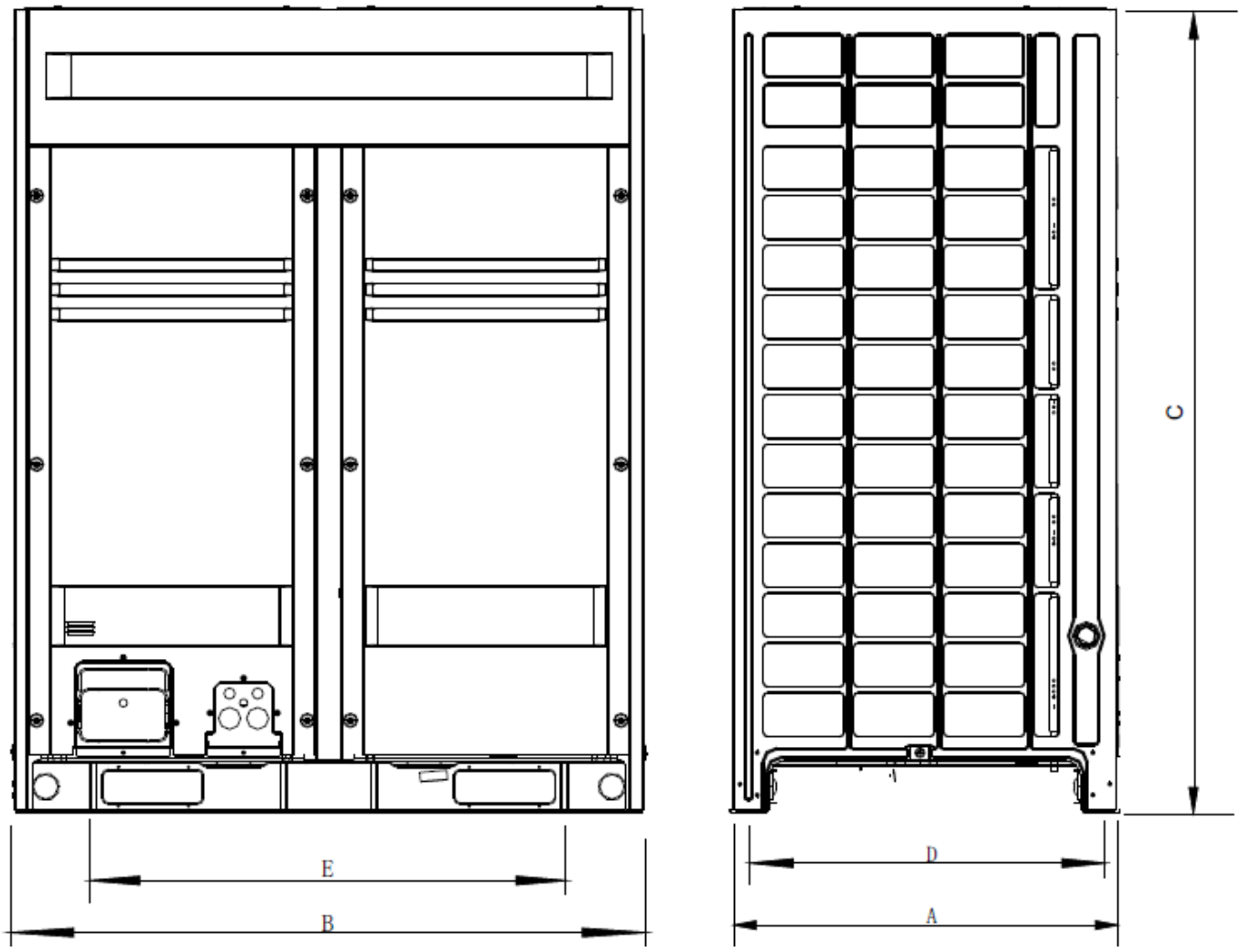
d) 96 kBtu/h



Unit: mm

Items / Model (kBtu/h)	A	B	C	D	E
96	974	766	1618	828	736

e) 150 kBtu/h

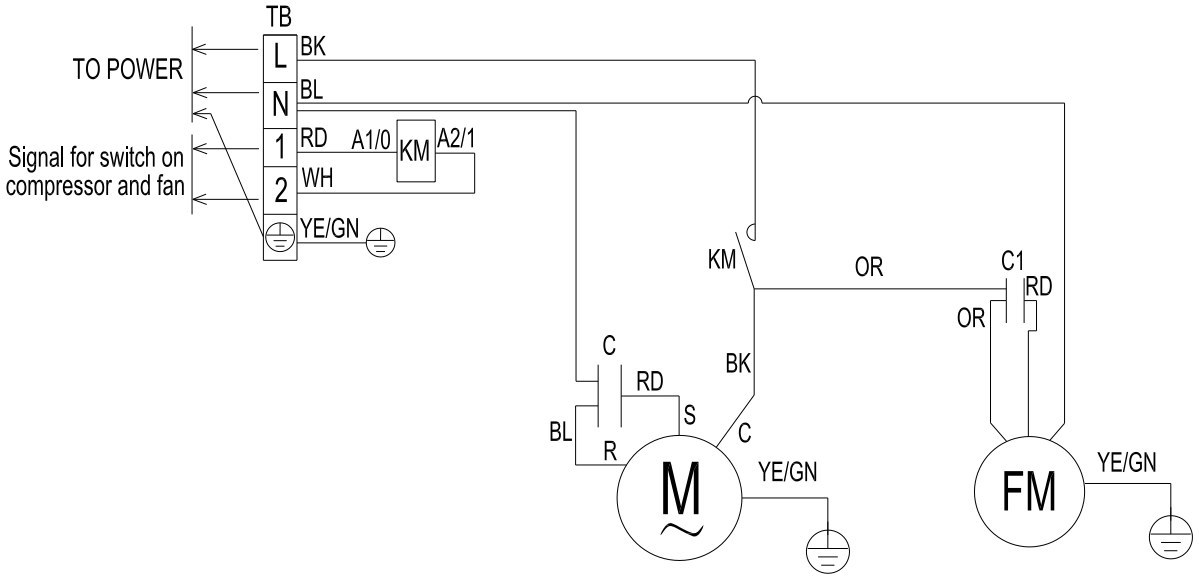


Unit: mm

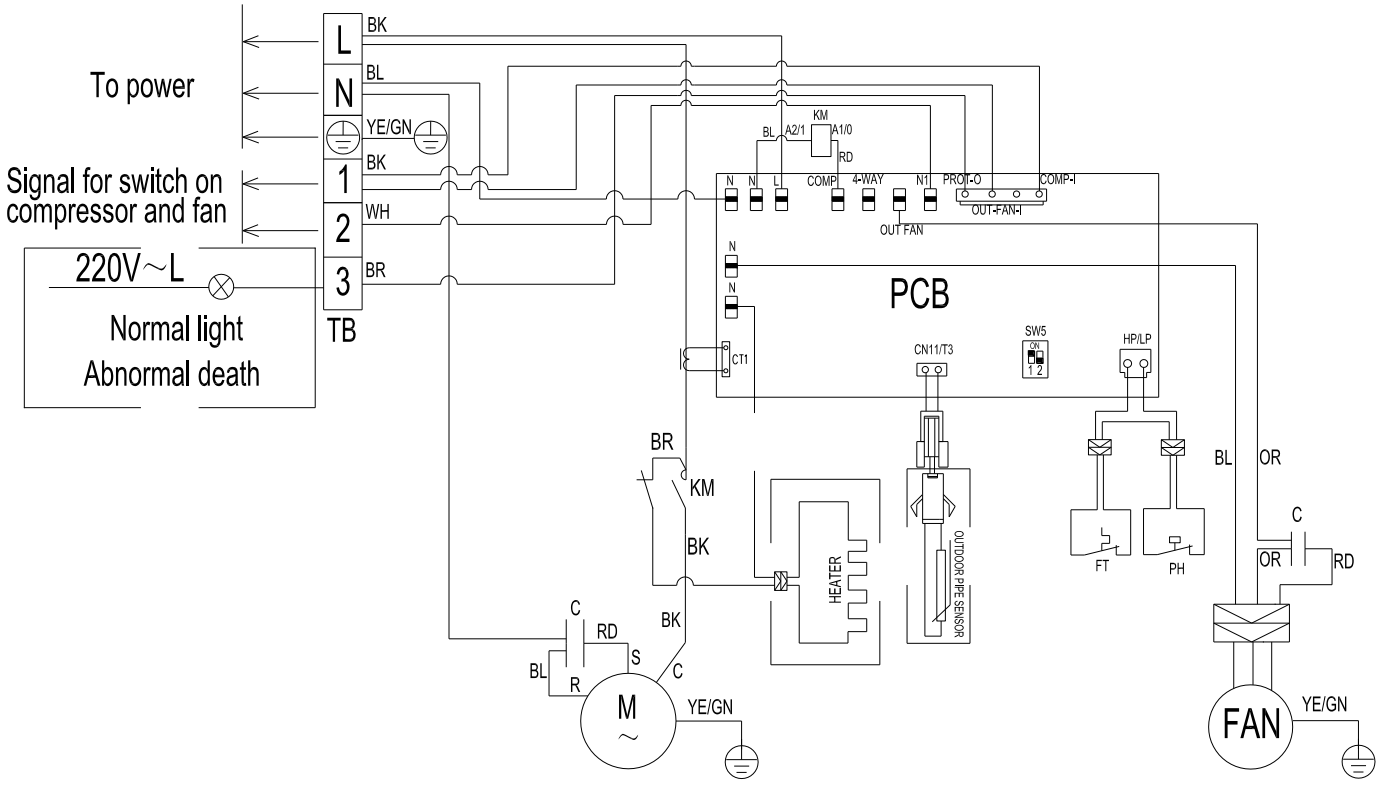
Items / Model (kBtu/h)	A	B	C	D	E
150	766	1264	1618	828	740

7. Wiring diagram

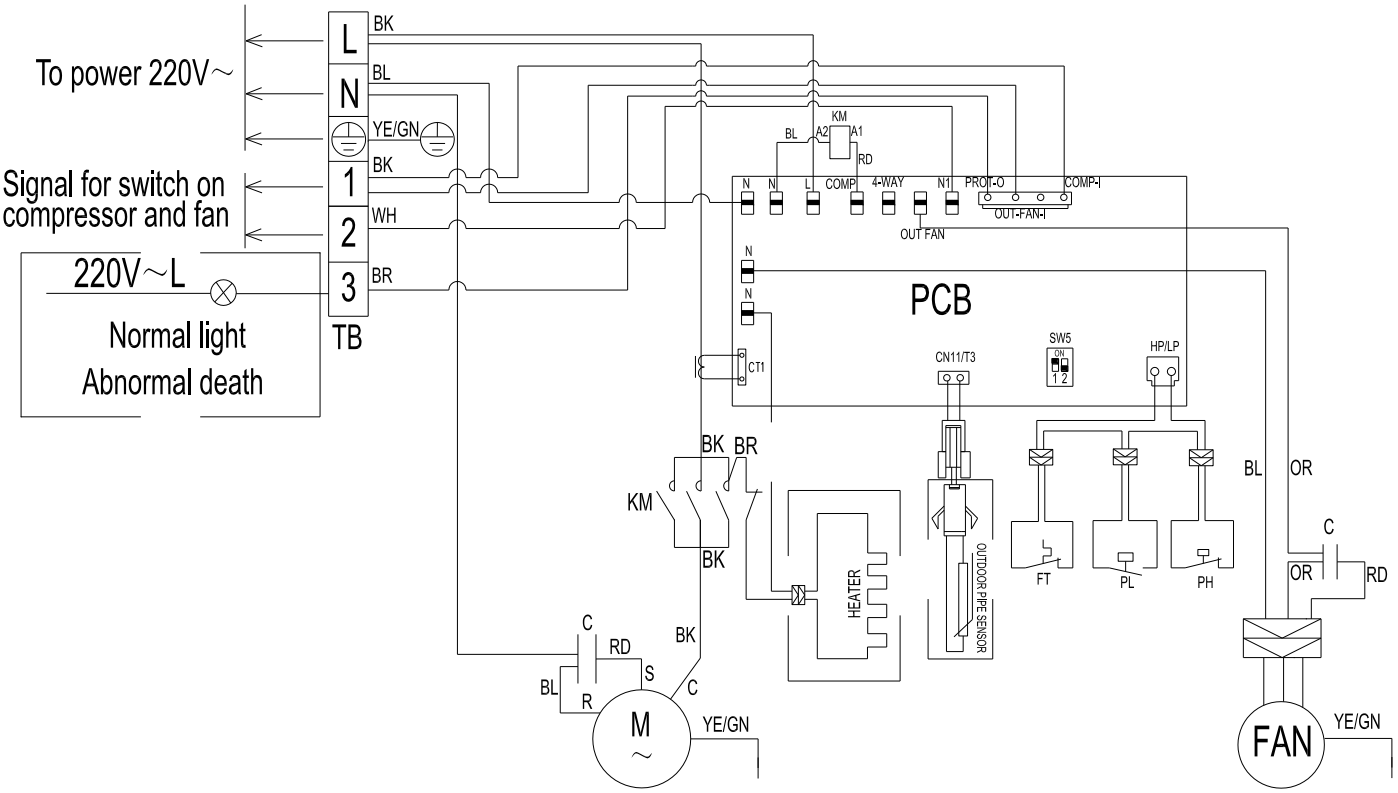
a) 18



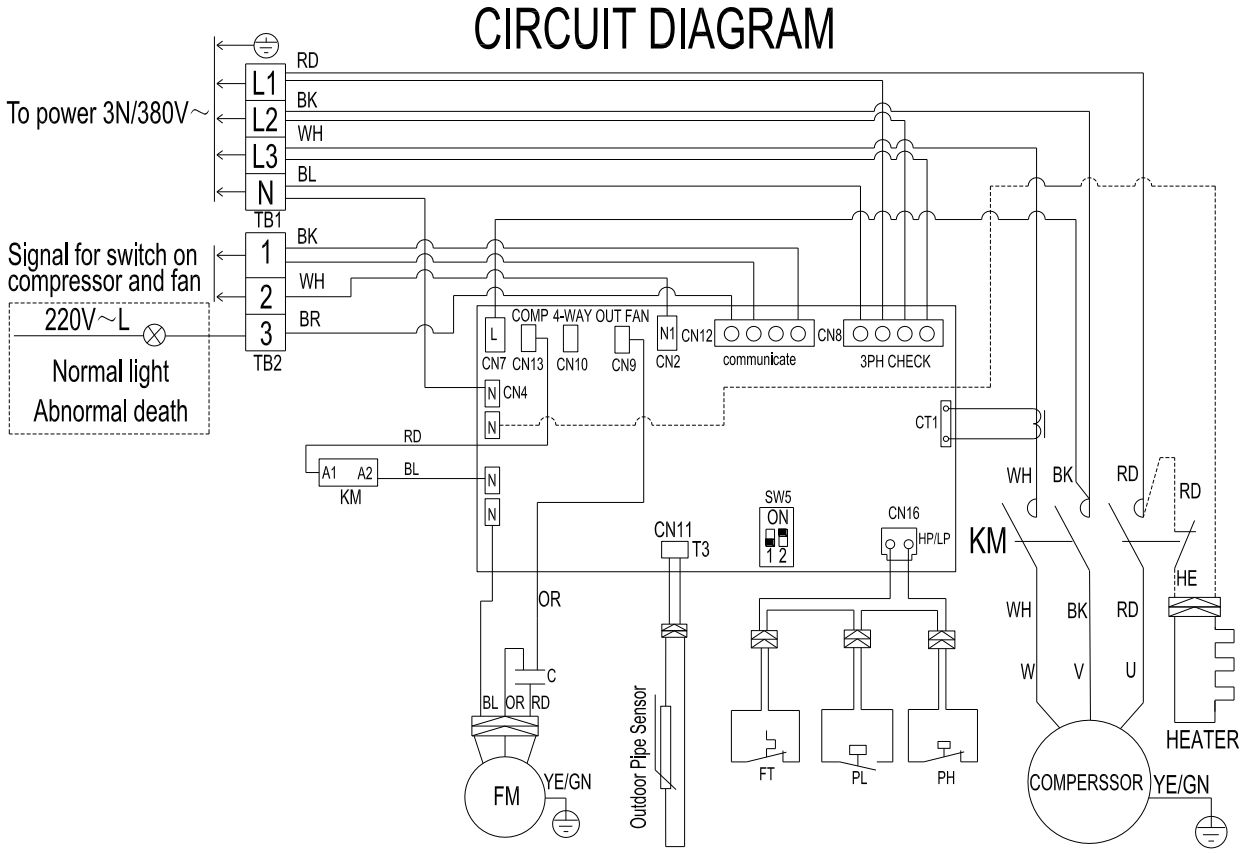
b) 24 kBtu/h



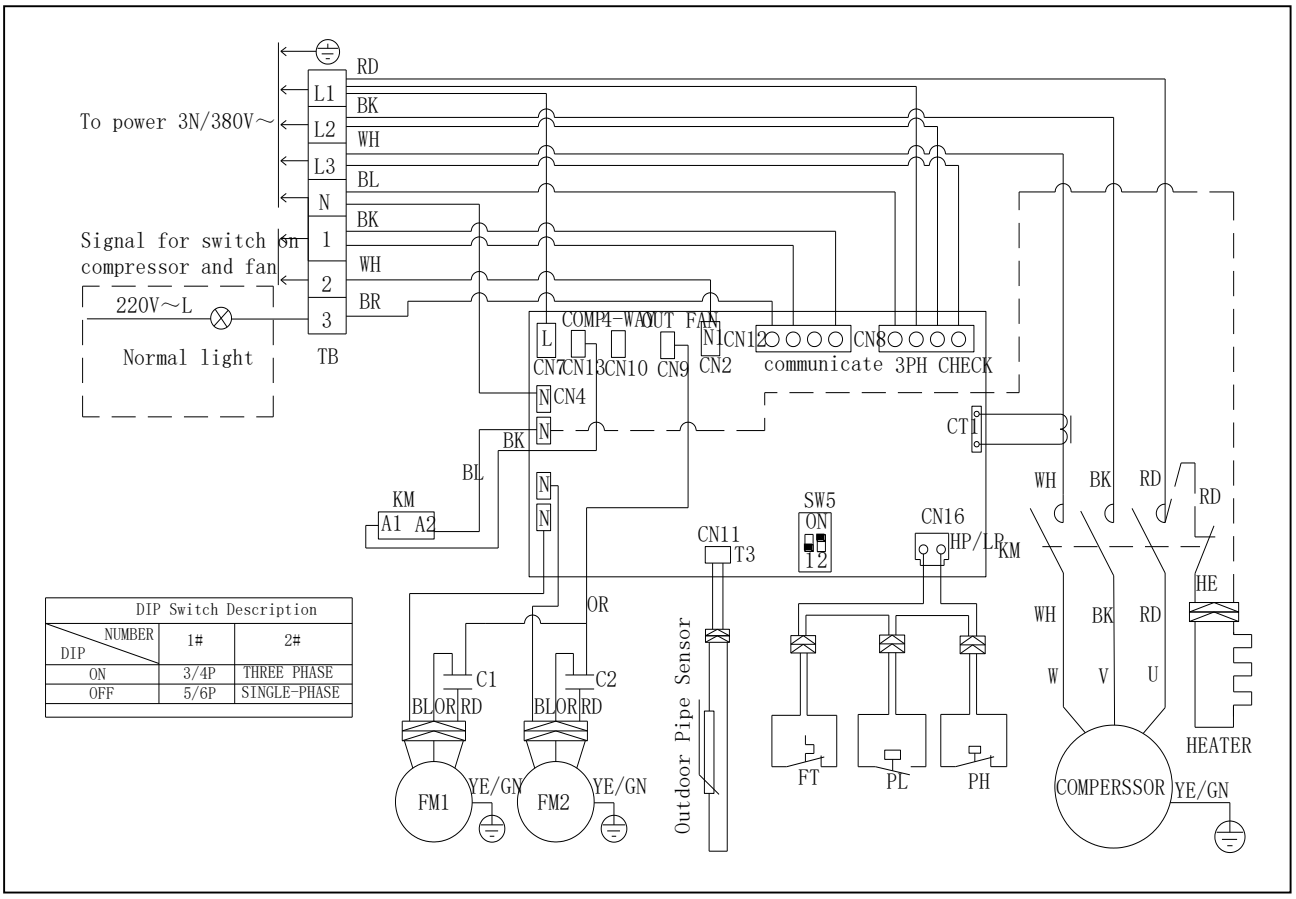
c) 36 kBtu/h



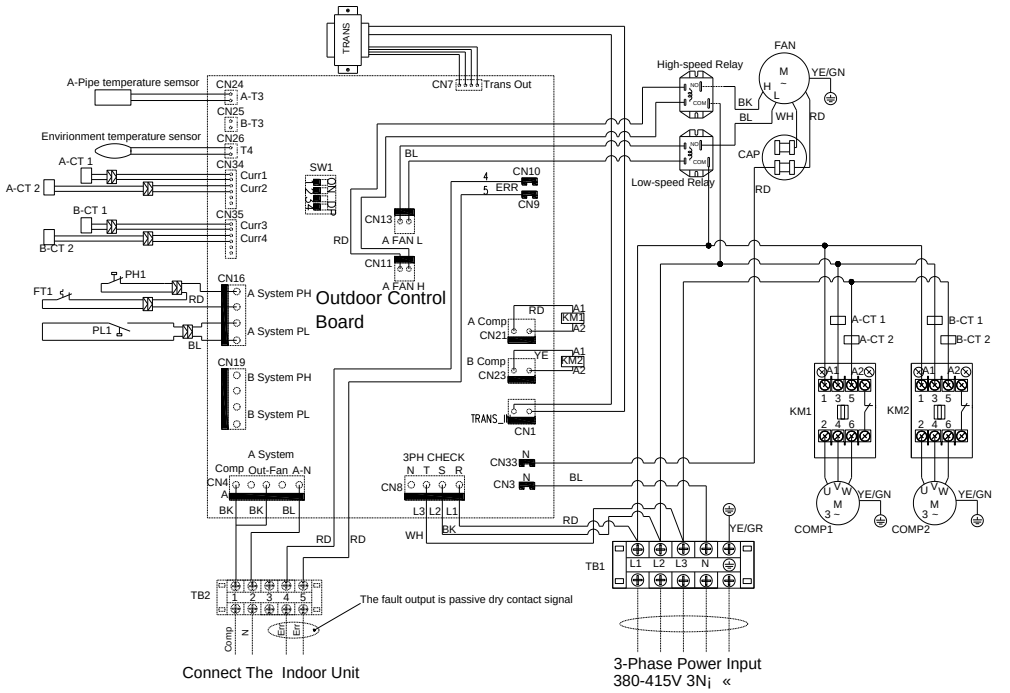
d) 48 kBtu/h



e) 60 kBtu/h



f) 96 kBtu/h



COMPONENT CODE	
COMP	Compressor
KM	AC Contactor
FAN	Outdoor fan motor
CAP	Fan Capacitor
TB	Terminal block
4-WAY	4-way reversing valve coil
PH	High-pressure switch
PL	Low-pressure switch
FT	Exhaust switch
KA	Relay
CT	Current Transformer
ERR	Fault signal out

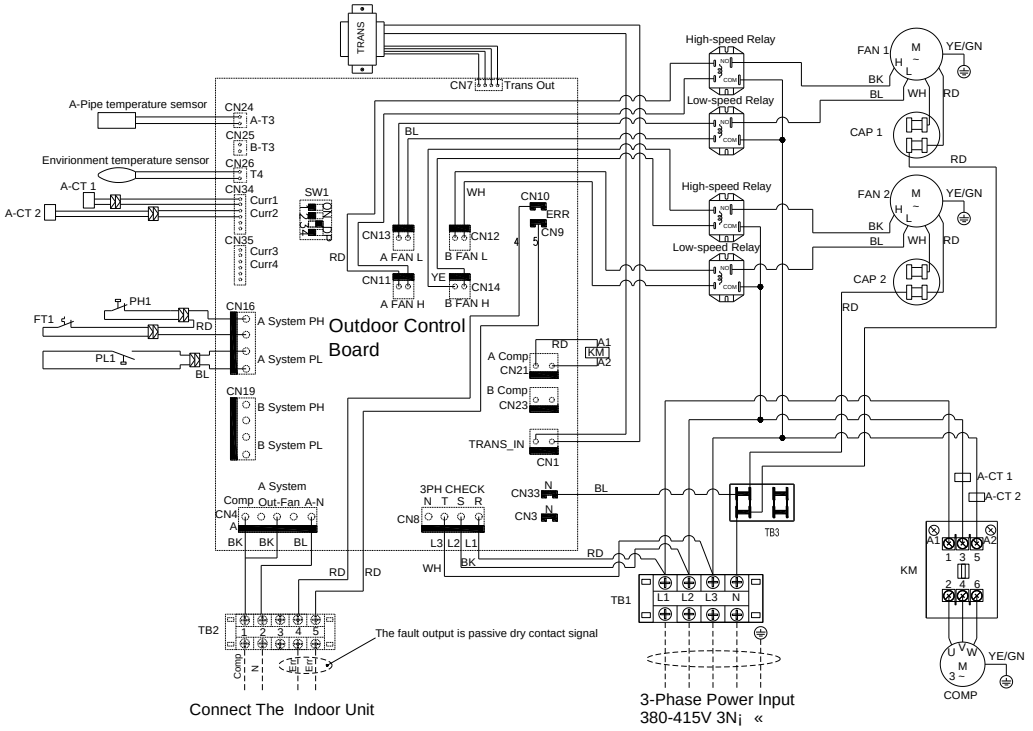
WIRE COLOR CODE	
RD RED	OR ORANGE
BK BLACK	GY GREY
BL BLUE	GN GREEN
PR PURPLE	WH WHITE
BR BROWN	HE HENNA
YE YELLOW	

NOTES

1. The units should use the unattached power switch, stated-cross-section wires and matching-spec. breaker.
2. Use the fuse within the specified scope, it can not replaced by iron wires or brass wires.
3. The units should install the stated-cross-section earth wire and keep it grounding unfailingly.

DIP Switch Description		
1#	2#	Unit Category
OFF	OFF	Single duct, single system models
3#	4#	Overcurrent choose
OFF	OFF	14A

g) 150 kBtu/h



COMPONENT CODE	
COMP	Compressor
KM	AC Contactor
FAN	Outdoor fan motor
CAP	Fan Capacitor
TB	Terminal block
4-WAY	4-way reversing valve coil
PH	High-pressure switch
PL	Low-pressure switch
FT	Exhaust switch
KA	Relay
CT	Current Transformer
ERR	Fault signal out

WIRE COLOR CODE			
RD	RED	OR	ORANGE
BK	BLACK	GY	GREY
BL	BLUE	GN	GREEN
PR	PURPLE	WH	WHITE
BR	BROWN	HE	HENNA
YE	YELLOW		

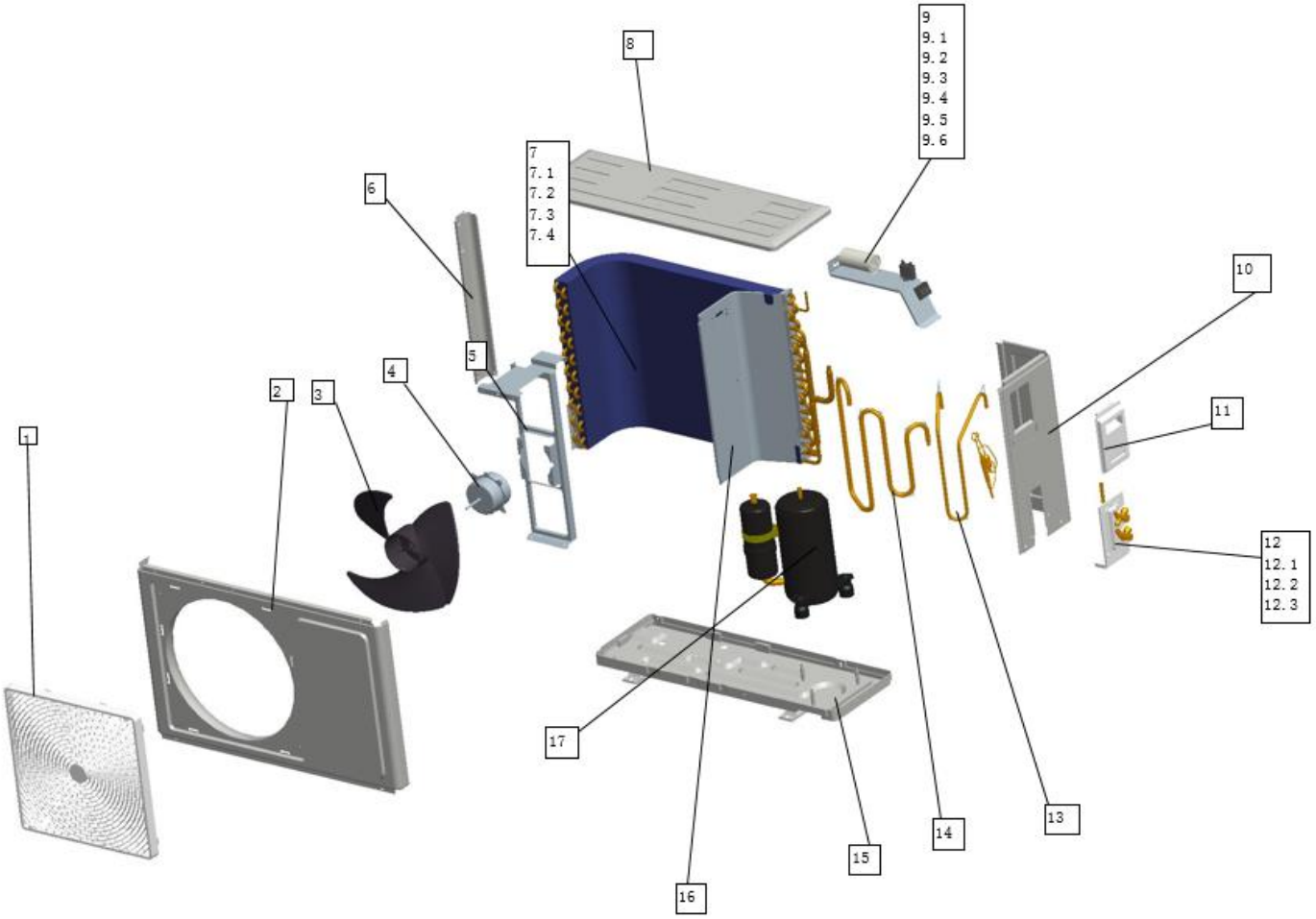
NOTES

1. The units should use the unattached power switch, stated-cross-section wires and matching-spec. breaker.
2. Use the fuse within the specified scope, it can not replaced by iron wires or brass wires.
3. The units should install the stated-cross-section earth wire and keep it grounding unfailingly.

DIP Switch Description		
1#	2#	Unit Category
OFF	OFF	Single duct, single system models
3#	4#	Overcurrent choose
ON	OFF	40A

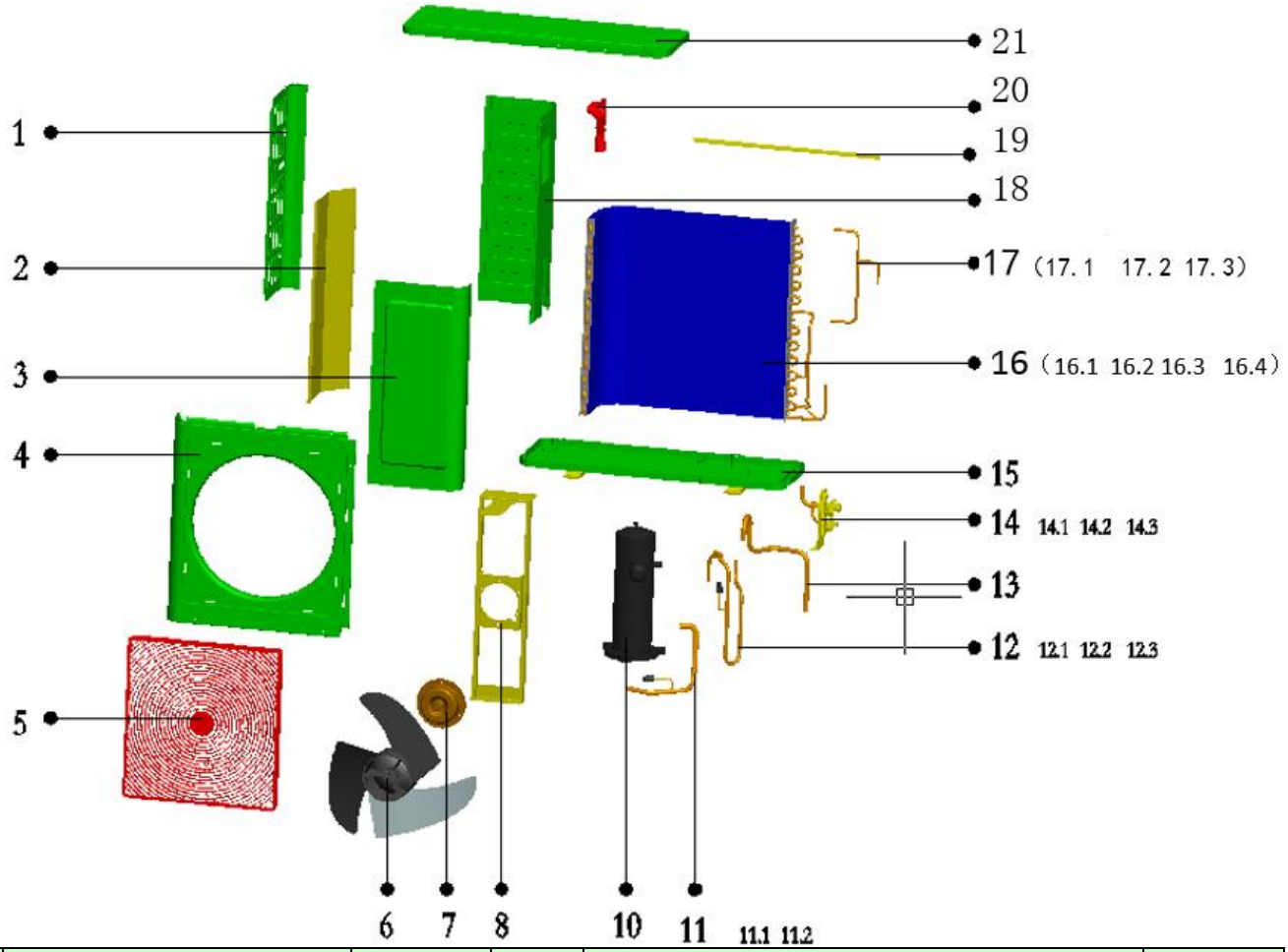
8. Exploded view

a) 18 kBtu/h



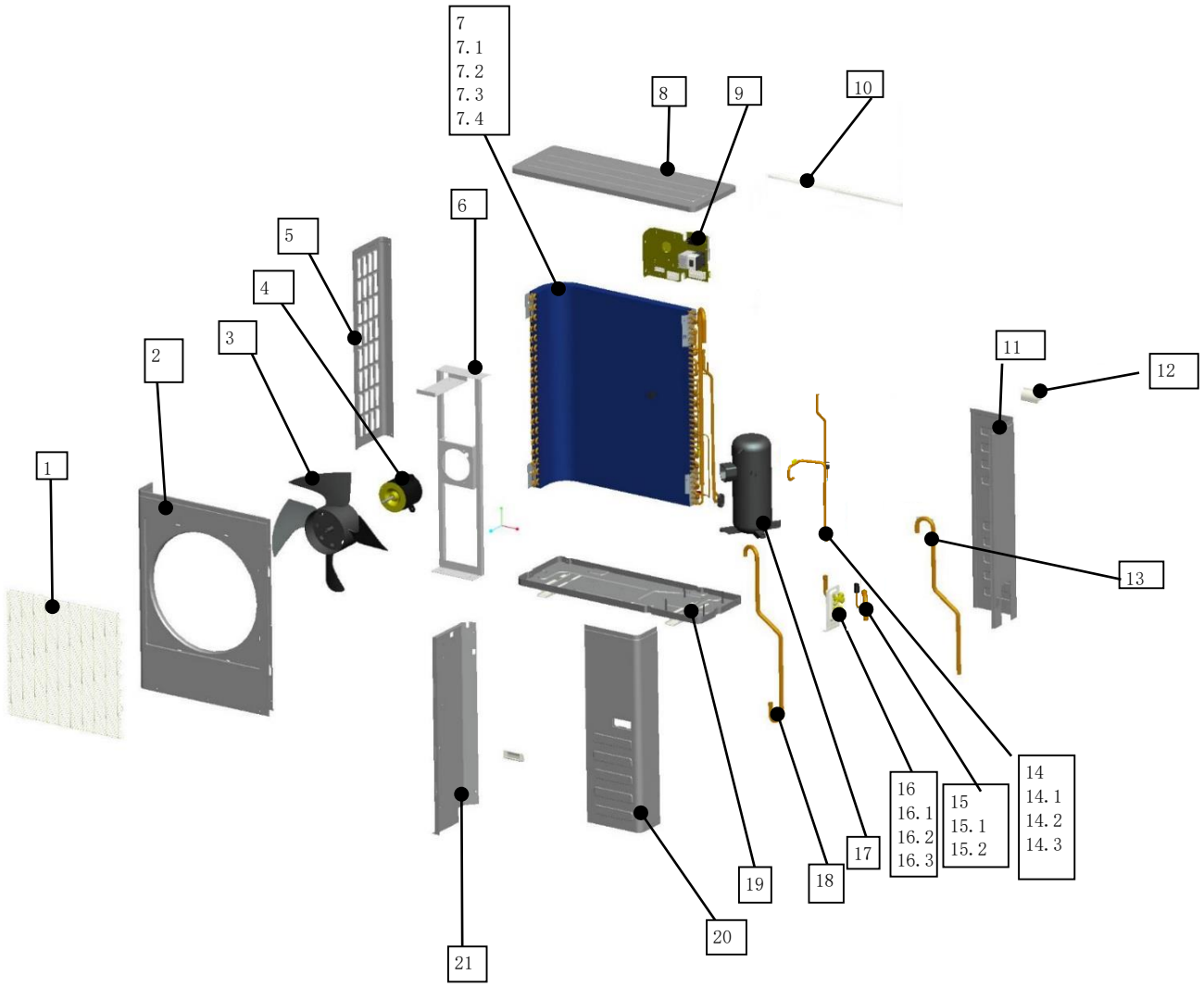
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Top net	**1**	**9.3**	Terminal	**1**
2	Panel assy	**1**	**9.4**	Groove clamp 5	**1**
3	Propeller fan	**1**	**9.5**	Cover for E-parts	**1**
4	Fan motor	**1**	**9.6**	Capacitor clamp	**1**
5	Holder for fan motor	**1**	**10**	Cover for E-parts	**1**
6	column	**1**	**11**	Handle	**1**
7	Condenser assy	**1**	**12**	Valve holder assy	**1**
7.1	Condenser	**1**	**12.1**	Valve holder	**1**
7.2	Process pipe	**1**	**12.2**	Cut-off valve C	**1**
7.3	Pre-welding assy for distributing capillary	**1**	**12.3**	Cut-off valve C	**1**
7.4	Condensor collecting pipe assy	**1**	**13**	Discharge pipe	**1**
8	Cover	**1**	**14**	Compressor suction pipe	**1**
9	E-parts assy	**1**	**15**	Chassis	**1**
9.1	Compressor capacitor	**1**	**16**	Separating board	**1**
9.2	Fan motor capacitor	**1**	**17**	Compressor	**1**

b) 24 kBtu/h



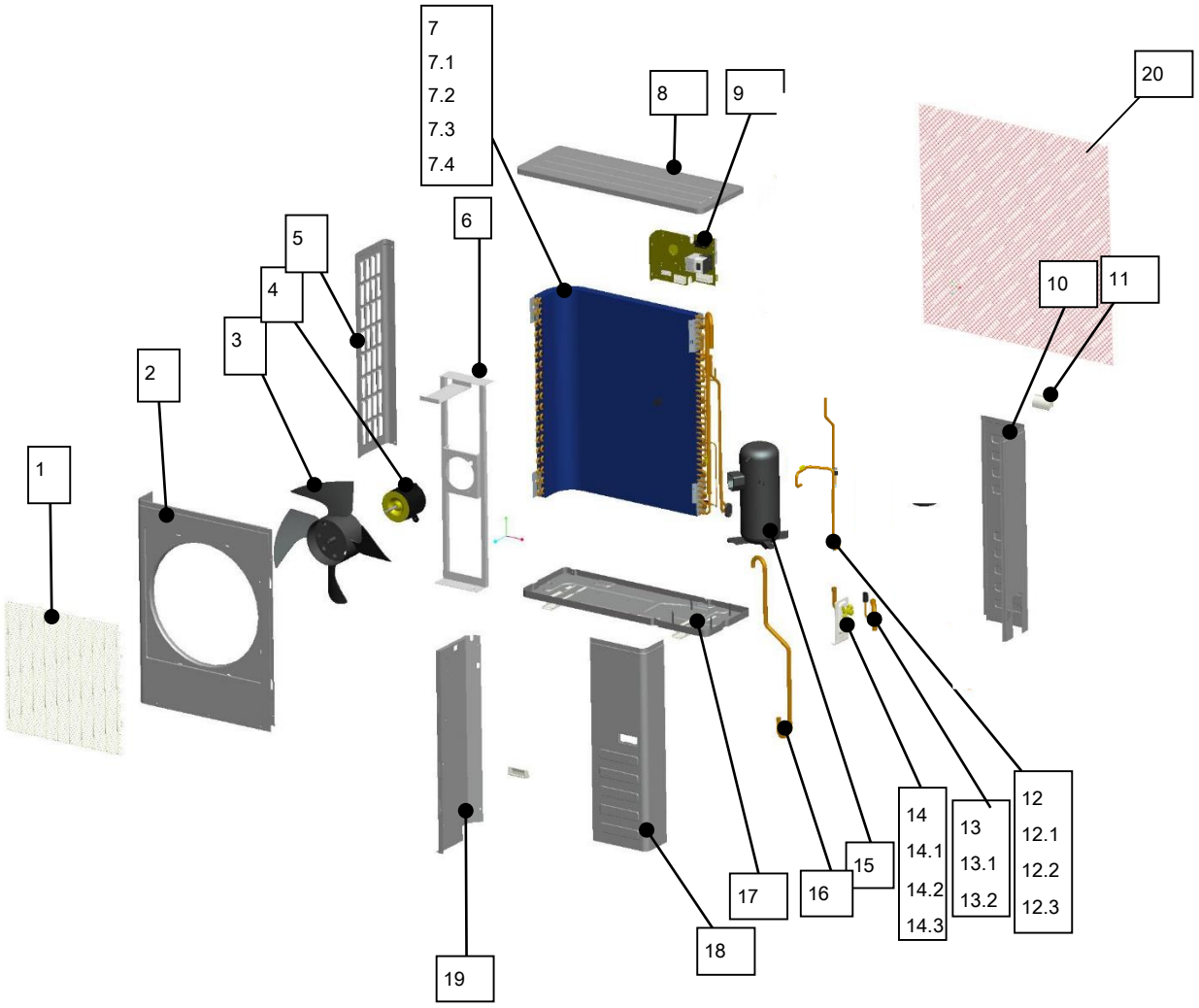
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Left clapboard	**1**	**14.1**	Valve holder	**1**
2	Separating board	**1**	**14.2**	Cut-off valve	**1**
3	Maintenance panel	**1**	**14.3**	Cut-off valve	**1**
4	Front panel	**1**	**15**	Chassis	**1**
5	Front top net	**1**	**16**	Condenser assy	**1**
6	Propeller fan	**1**	**16.1**	Condenser	**1**
7	Fan motor	**1**	**16.2**	Condenser discharge tube	**1**
8	Holder for fan motor	**1**	**16.3**	Condenser inlet tube shockproof tubule	**1**
10	Compressor components	**1**	**16.4**	Process pipe	**1**
11	Suction pipe components	**1**	**17**	Condensation collector components	**1**
11.1	Suction pipe	**1**	**17.1**	Condenser gas collection transition pipe B	**1**
11.2	Suction pipe A	**1**	**17.2**	Condenser gas collection transition pipe A	**1**
12	Discharge pipe assy	**1**	**17.3**	Condensation collector	**1**
12.1	Discharge pipe	**1**	**18**	Right clapboard	**1**
12.2	Probe of copper pipe	**1**	**19**	Back connection	**1**
12.3	High-pressure swicth	**1**	**20**	Handle	**1**
13	Filter components	**1**	**21**	Cover board	**1**
14	Valve holder components	**1**			

c) 36 kBtu/h



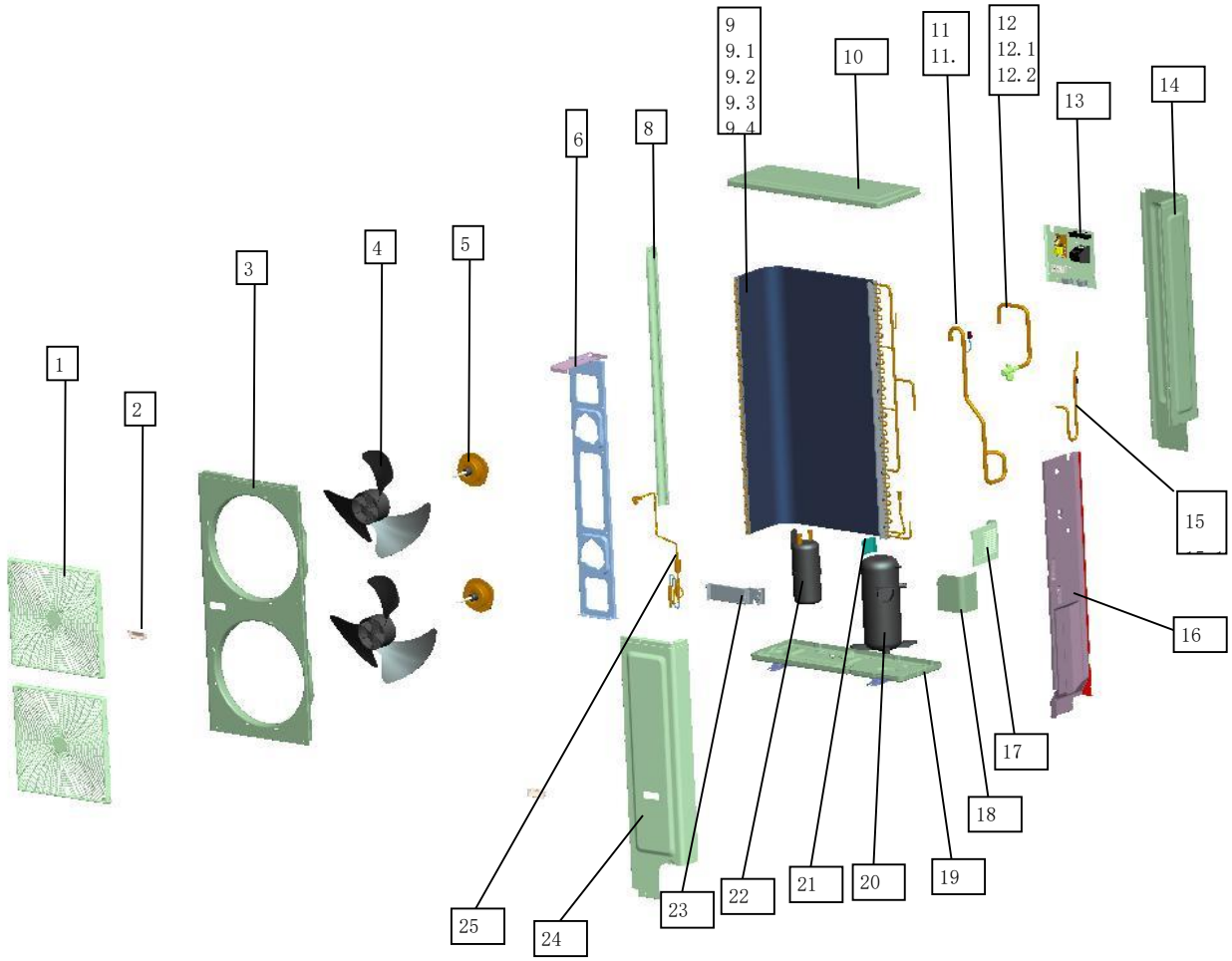
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front top net	1	14	Discharge pipe assy	1
2	Front panel	1	14.1	Discharge pipe	1
3	Propeller fan	1	14.2	High-pressure swicth	1
4	Fan motor	1	14.3	Probe of copper pipe	1
5	Left clapboard	1	15	Return pipe components of compressor	1
6	Holder for fan motor	1	15.1	Return pipe of compressor	1
7	Condenser assy	1	15.2	Low-pressure swicth	1
7.1	Condenser	1	16	Valve holder components	1
7.2	Condenser inlet components	1	16.1	Valve holder	1
7.3	Distributing capillary assy	1	16.2	Cut-off valve	1
7.4	Condenser fixing clamp	1	16.3	Cut-off valve	1
8	Cover	1	17	Compressor	1
9	E-parts assy	1	18	Suction pipe	1
10	Back frame	1	19	Chassis	1
11	Right clapboard	1	20	Maintenance panel	1
12	Handle	2	21	Separating board	1
13	Low pressure valve	1			

d) 48 kBtu/h



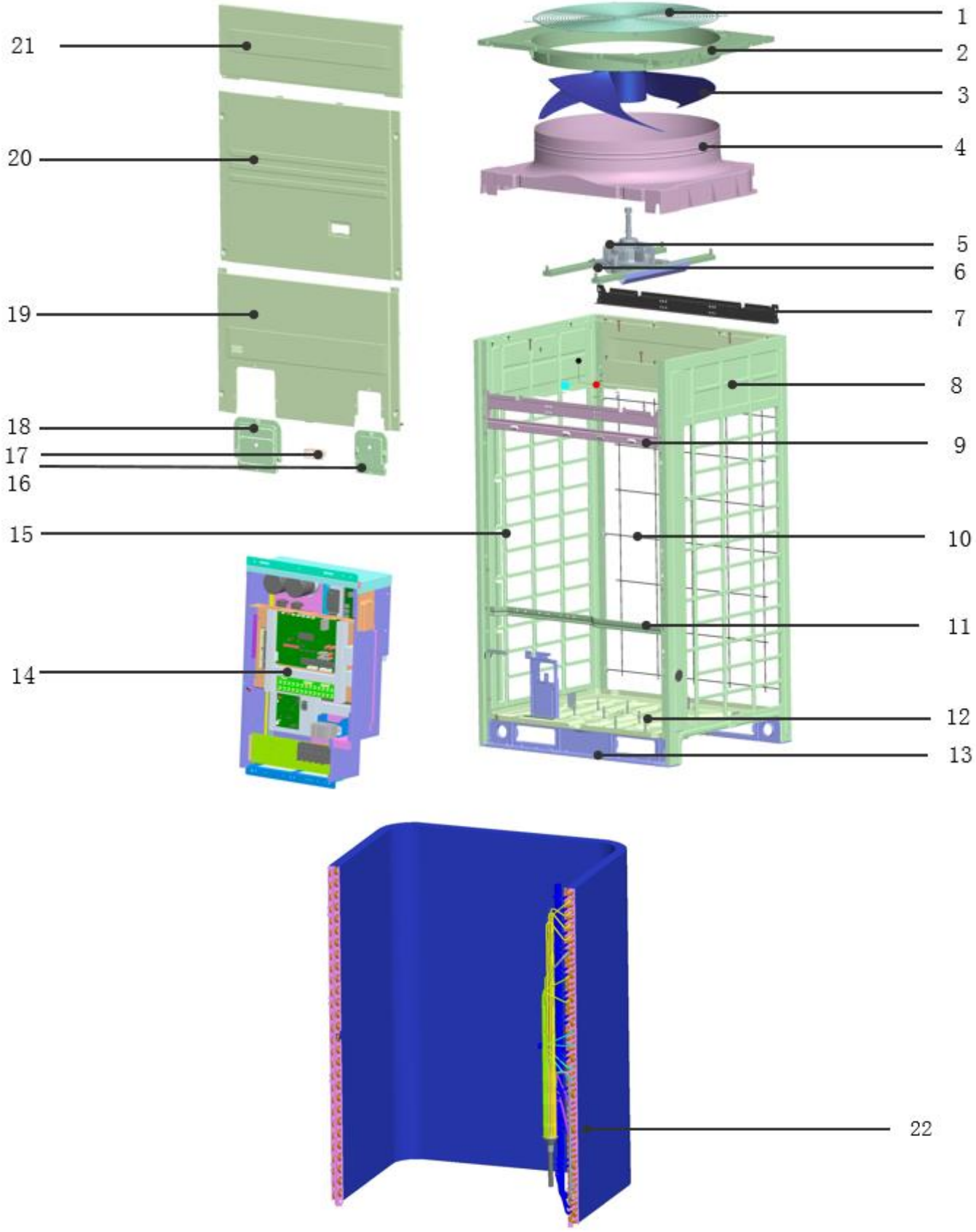
No.	Part Name	Quantity	No.	Part Name	Quantity
1	Front top net	1	12.2	High-pressure swicth	1
2	Front panel	1	12.3	Probe of copper pipe	1
3	Propeller fan	1	13	Return pipe components of compressor	1
4	Fan motor	1	13.1	Return pipe of compressor	1
5	Left clapboard	1	13.2	Low-pressure swicth	1
6	Holder for fan motor	1	14	Valve holder components	1
7	Condenser assy	1	14.1	Valve holder	1
7.1	Condenser	1	14.2	Cut-off valve	1
7.2	Condenser inlet components	1	14.3	Cut-off valve	1
7.3	Distributing capillary assy	1	15	Compressor	1
8	Cover	1	16	Suction pipe	1
9	E-parts assy	1	17	Chassis	1
10	Right clapboard	1	18	Maintenance panel	1
11	Handle	2	19	Separating board	1
12	Discharge pipe assy	1	20	Back net	1
12.1	Discharge pipe	1			

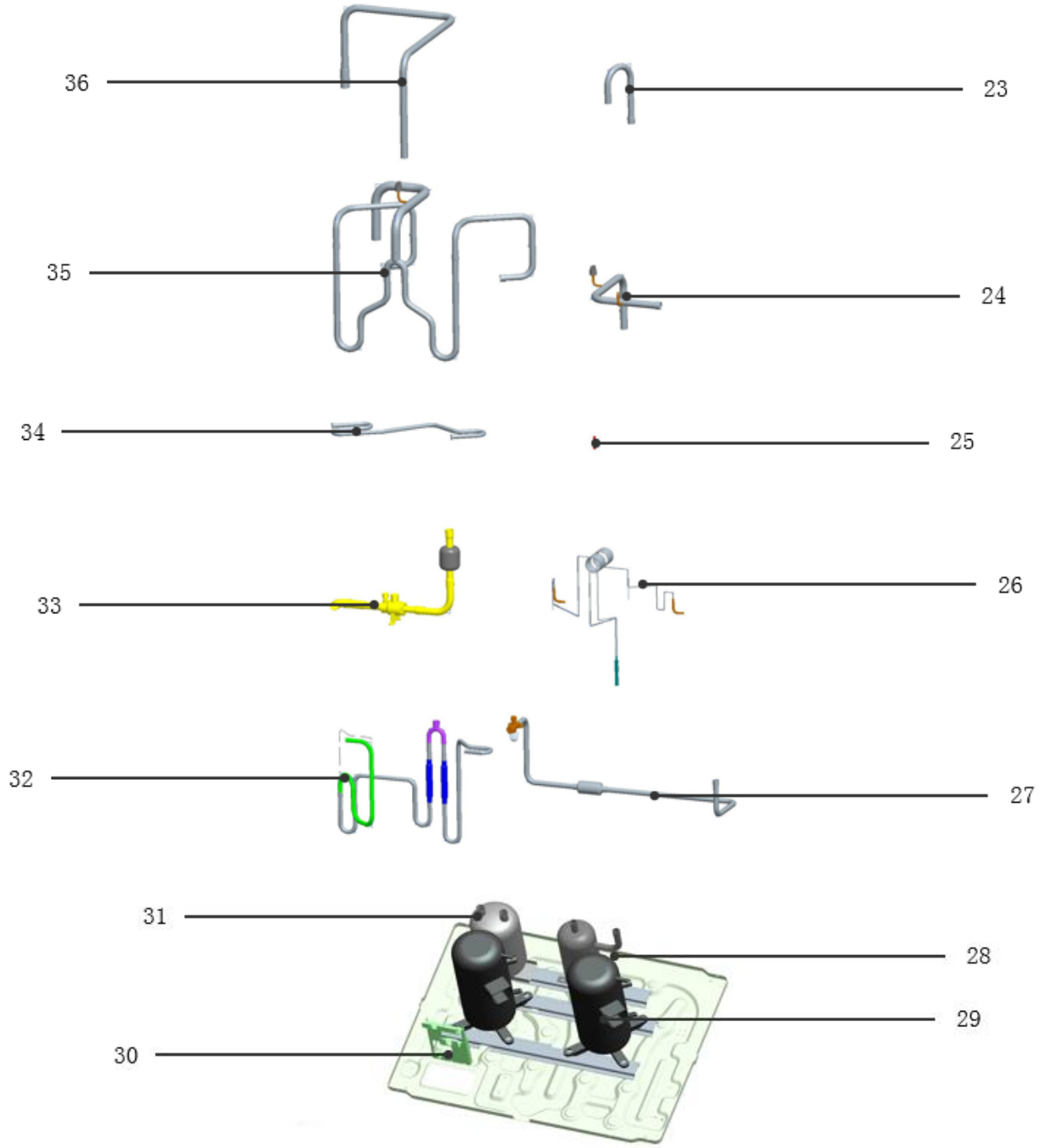
e) 60 kBtu/h



No.	Part Name	Quantity	No.	Part Name	Quantity
1	Top net	2	13	E-parts assy	1
2	Handle	3	14	Rear plate	1
3	Front panel	1	15	Discharge pipe assy	1
4	Propeller fan	2	15.1	Probe of copper pipe	1
5	Fan motor	2	15.2	High-pressure swicth	1
6	Motor bracket connecting plate	1	15.3	Connecting tube components of the compressor discharge	1
7	Holder for fan motor	1	16	Separating board	1
8	Column	1	17	Rear side valve board	1
9	Condenser components	1	18	Right side valve board	1
9.1	Collector components	1	19	Chassis welding assy	1
9.2	Distributing capillary assy	1	20	Compressor assy	1
9.3	Cold out pipe	1	21	Machine foot cover	1
9.4	Condenser	1	22	Vapor-liquid seperator	1
9.5	Condenser inlet tube shockproof tubule	1	23	Valve holder	1
10	Cover	1	24	Right clapboard	1
11	Suction pipe assy	1	25	High pressure valve connecting pipe assy	1
11.1	Suction pipe	1	25.1	Filter	1
11.2	Low-pressure swicth	1	25.2	Transition pipe	1
12	Low-pressure valve connecting pipe assy	1	25.3	High pressure valve connecting pipe	1
12.1	Cut-off valve DN16	1	25.4	Cut-off valve DN8	1
12.2	Low-pressure valve connecting pipe	1			

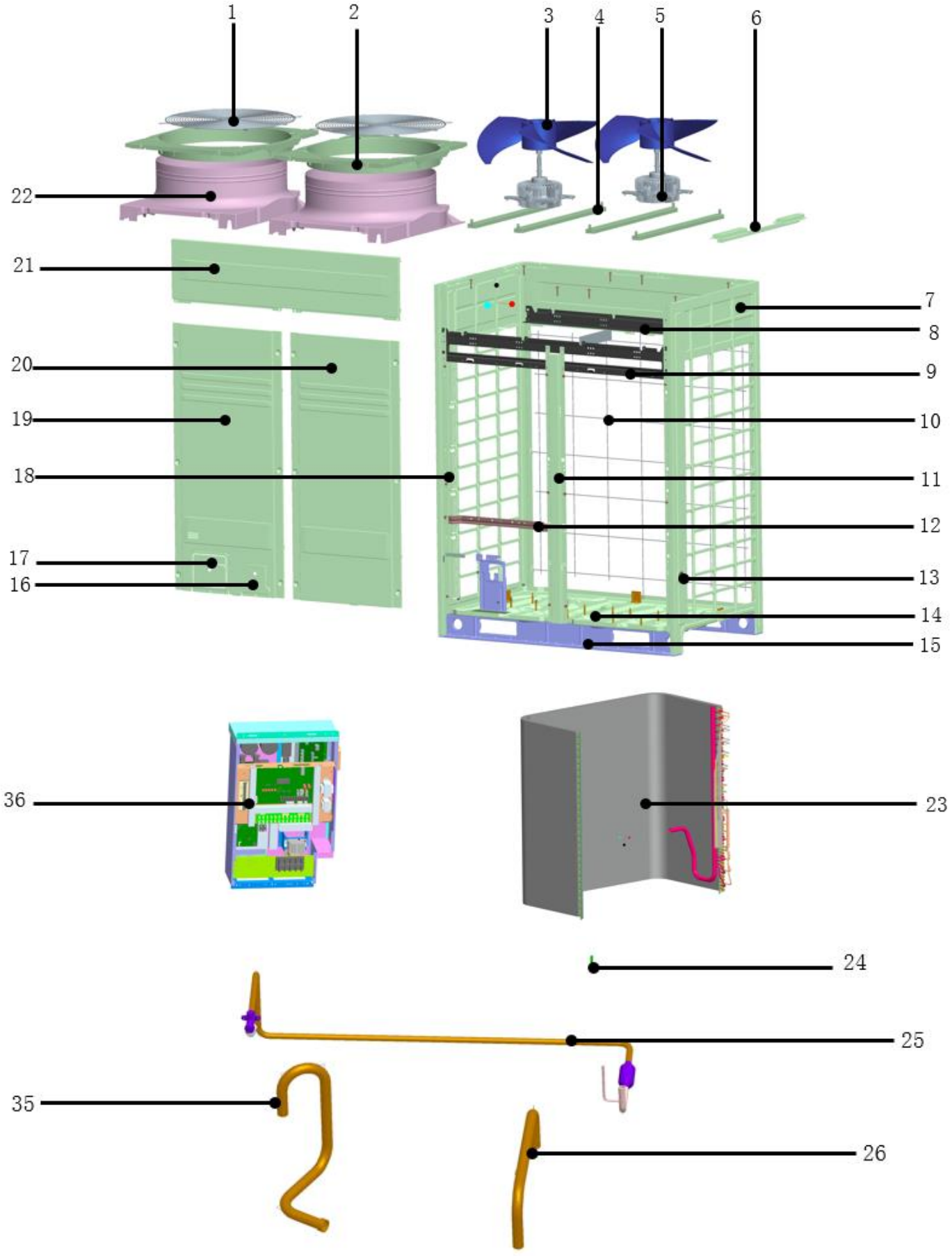
f) 96 kBtu/h

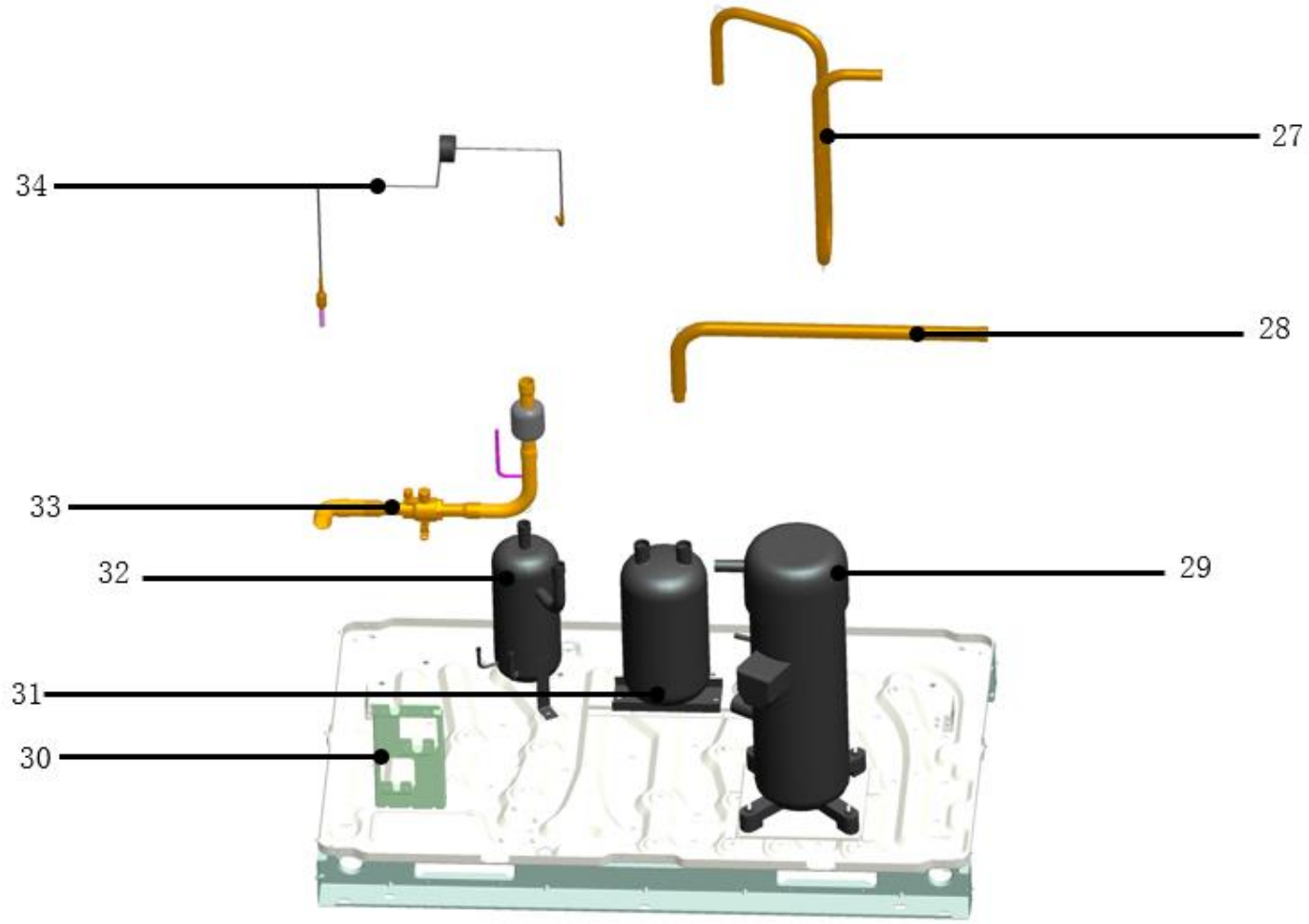




No.	Part Name	Quantity	No.	Part Name	Quantity
1	Top net	1	19	dowm panel	1
2	Cover	1	20	middle panel	1
3	Propeller fan	1	21	Top panel components	2
4	Inlet cone components	1	22	condenser assy	1
5	Fan motor	1	23	Connecting tube components of the compressor discharge	1
6	Holder for fan motor	2	24	Flute-shaped tube connecting tube components	1
7	Back beam	1	25	Capillary transition tube	1
8	Left cover	1	26	Oil return capillary comonents	1
9	Front top beam	1	27	Pressure valve components	1
10	Back net	1	28	Oil separator	1
11	Front down beam	1	29	Compressor	2
12	base assy	1	30	Seat board	1
13	Machine feet	2	31	Vapour separator	1
14	E-parts, assy	1	32	Compressor discharge tube components	1
15	Right cover	1	33	Low pressure ball valve assembly	1
16	The pipe cover2	1	34	Oil balance capillary components	1
17	Pumping hands	1	35	Compressor inspiratory tube components	1
18	The pipe cover1	1	36	Vapour separator connection tube components	1

g) 150 kBtu/h





No.	Part Name	Quantity	No.	Part Name	Quantity
1	Top net	2	19	Left clapboard	1
2	Cover	2	20	Right clapboard	1
3	Propeller fan	2	21	Top panel components	2
4	Holder for fan motor	4	22	Inlet cone components	2
5	Fan motor	2	23	condenser assy	1
6	Top beam component	1	24	Capillary transition tube	1
7	Right cover	1	25	High pressure cut-off assembly	1
8	Back beam	1	26	Vapour separator connection tube components	1
9	Front top beam	1	27	Compressor exhaust component	1
10	Back net	1	28	Flute-shaped tube connecting tube components	1
11	Column components	1	29	Compressor	1
12	Front down beam	1	30	Seat board	1
13	The lead cover	2	31	Vapour separator	1
14	base assy	1	32	Oil separator	1
15	Machine feet	2	33	Low-Pressure Ball valve components	1
16	The pipe cover2	1	34	Oil return capillary comonents	1
17	The pipe cover1	1	35	Compressor inspiratory tube	1
18	Left cover	1	36	E-parts, assy	1

Part 2 Installation

Note

- Install the unit where enough space of installation and maintenance is available.
- Install the unit where the ceiling is horizontal and enough for bearing the weight of the indoor unit.
- Install the unit where the air inlet and outlet are not baffled and are the least affected by external air.
- Install the unit where the supply air flow can be sent to all parts in the room.
- Install the unit where it is easy to lead out the connective pipe and the drain pipe.
- Install the unit where no heat is emitted from a heat source directly.
- Installing the equipment in any of the following places may lead to faults of the equipment (if that is inevitable, consult the supplier):

- The site contains mineral oils such as cutting lubricant.
- Seaside where the air contains much salt.
- Hot ring area where corrosive gases exist, e.g., sulfide gas.
- Factories where the supply voltage fluctuates seriously.
- Inside a car or cabin.
- Place like kitchen where oil permeates.
- Place where strong electromagnetic waves exist.
- Place where flammable gases or materials exist.
- Place where acid or alkali gases evaporate.

- Other special environments.
- Install the unit where enough space of installation and maintenance is available.
- Install the unit where the air inlet and air outlet are free from obstacles and strong wind.
- Install the unit in a dry and well ventilated place.
- Install the unit where the bearing surface is level and can bear weight of the unit, and is suitable for installing the unit horizontally without increasing noise or vibration.
- Install the unit where the operation noise and the expelling of air do not affect neighbors.
- Install the unit where no flammable gas is leaked.
- Install the unit where it is convenient for pipe connection and electric connection.

1. Installation steps

2.1 Installation
Check the model and name to avoid mistaken installation.

2.2 Refrigerant pipe
- The refrigerant pipes must have the specified diameter.
- Nitrogen of a certain pressure must be filled into the refrigerant pipe before welding.
- The refrigerant pipe must undergo heat insulation treatment.
- After the refrigerant pipe is installed completely, the indoor unit cannot be powered on before performing the airtight test and creating a vacuum.

2.3 Pressure test
The refrigerant pipe must undergo the airtight test [with 2.94MPa (30kgf/cm^{2}G) nitrogen].

2.4 Creating a vacuum
Be sure to use the vacuum pump to create a vacuum of the connective pipe at both air side and liquid side concurrently.

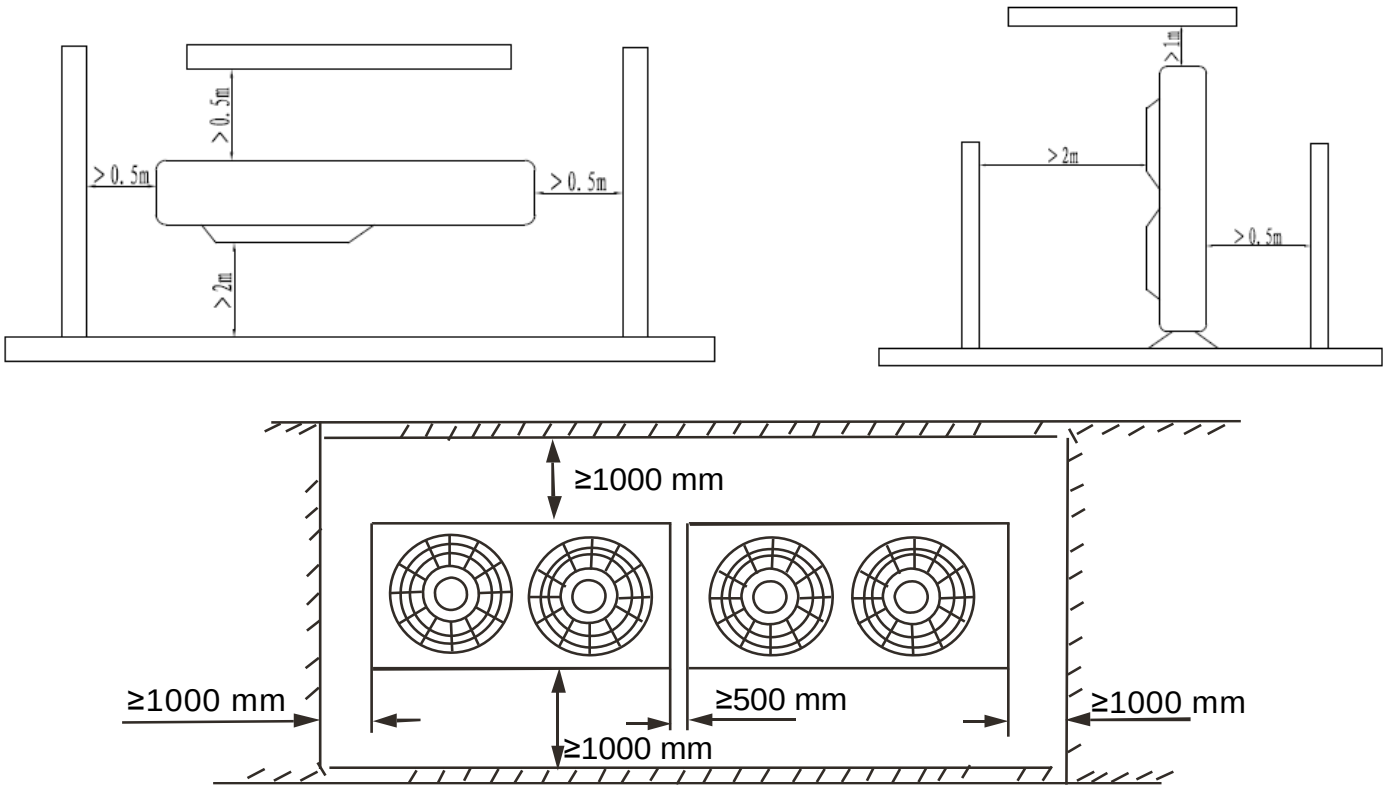
2.5 Refrigerant replenishment
- If the pipe is longer than the reference pipe, the refrigerant replenishment quantity for each outdoor unit should be calculated through the formula obtained according to the actual length of the pipe.
- Record the refrigerant replenishment quantity, actual length of pipe and the height difference of the indoor & outdoor units onto the operation confirmation table (on the electric control box) of the outdoor unit in advance for future reference.

2.6 Electric wiring
- Select the power supply wire according to the design manual. The power wire size of the air conditioner should be greater than that of ordinary motors.
- In order to prevent disoperation of the air conditioner, do not interleave or entwine the power cable (380~415V/3N/50Hz) with the connection wires (low-voltage wires) of the indoor/outdoor unit.
- Power on the indoor unit after performing the airtight test and making a vacuum.

2.7 Trial run
Perform the trial run only after the electric heater of the outdoor unit compressor has been powered on over 12 hours.

2. Unit location

3.1 When installing the unit, leave a space for maintenance shown in the following figure. Install the power supply at the side of the outdoor unit.
3.2 Ensure enough space for installation and maintenance.

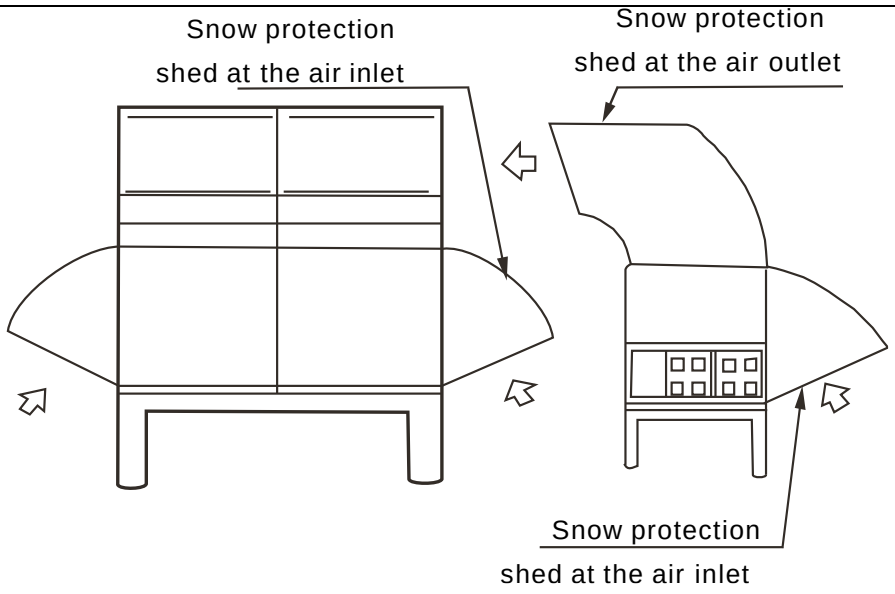


Note:
1. In case any obstacles exist above the outdoor unit, such obstacles must be 2000mm above the outdoor unit.
2. If miscellaneous articles are piled around the outdoor unit, such articles must be 400mm below the top of the outdoor unit.

3.3 Unit transportation

- Use 4 steel ropes of a Φ6mm or bigger size to hoist the unit and convey it into the room.
- In order to prevent scratch and deformity the unit, apply a guard board to the surface of contact between the steel ropes and the air conditioner.
- Remove the cushion for use in the transport after finishing the transport.
- Fork-lift truck can be used for conveying.

3.4 Snow protection facilities must be installed in the snowfall areas. In case the snow protection facilities are incomplete, faults may occur. In order to prevent influence caused by snow, set up raised pavilion, and install snow protection sheds at the air inlet and air outlet.

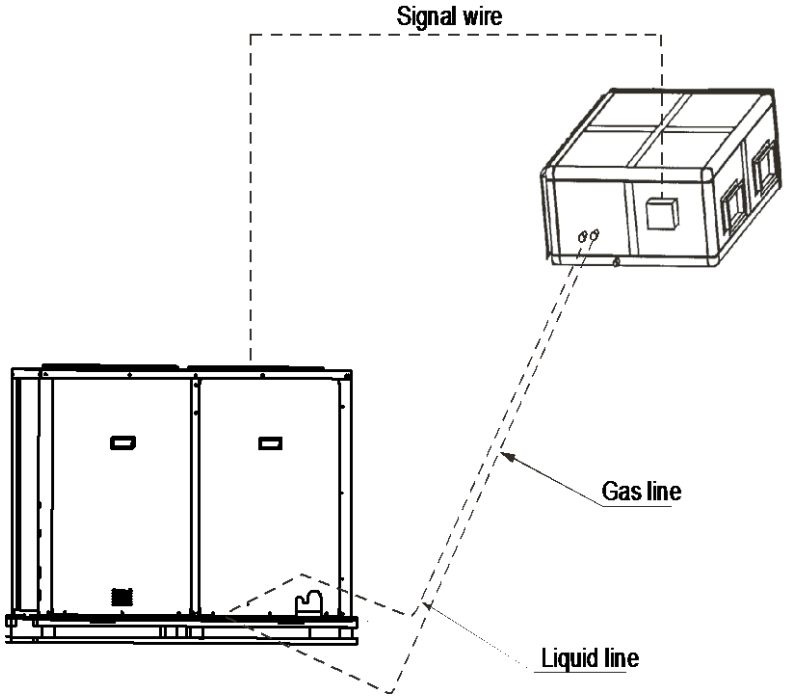


3. Installation of refrigerant pipes

4.1 Size of refrigerant pipes

Model	Gas side	Liquid side
RCF-50o	Φ12.7	Φ6.35
RCF-70o	Φ15.9	Φ9.53
RCF-100o	Φ15.9	Φ9.53
RCF-140o	Φ19.1	Φ9.53
RCF-160o	Φ19.1	Φ9.53
RCF-280o	Φ25.4	Φ12.7
RCF-450o	Φ28.6	Φ12.7

4.2 Connection between outdoor unit and indoor unit



4.3 The max. equivalent length of piping and the max. height difference between indoor unit and outdoor unit should check the following table

Rated refrigeration (KBtu/h) / Value	<24	24~60	≥96
Max. length (m)	15	20	50
Max. Height (m)	8	10	20
Max. number of bends(piece)	10	10	10

4. Piping between outdoor unit and indoor unit

5.1 Preparation before Installation

Check the height difference between the indoor unit and the outdoor unit, and check the length and number of bends of the refrigerant pipeline, which must meet the following requirements:

- In the piping process, do not let the air, dust or foreign substance intrudes into the pipeline system.
- Start piping only after fixing the indoor and outdoor units.
- Keep dry when piping. Do not let moist intrude into the pipeline system.

5.2 Procedure of Connecting Pipes

5.2.1 Measure the required length of the connective pipe, and make the pipes in the following procedure:

- Connect the indoor unit first, and then connect the outdoor unit.

The pipe bend should be handled carefully, without damaging the pipe.

- The valve of the outdoor unit should be closed completely.

Every time when connecting the pipe, screw off the nut at the valve, and connect the flared pipe (within 5 minutes). If the nut is put away for a long time after being screwed off the valve, dust and other foreign substance may intrude into the pipeline system and lead to fault. Before connecting the pipe, use the refrigerant to expel air out of the pipe.

- After complete piping, expel air as instructed in the “Expel air” section.

After expelling the air, screw up the nut at the maintenance orifice.

- The bend angle shall not exceed 90°.

The bend shall be preferably in the middle of the pipe length, and higher bend radiuses are preferred. Do not bend the flexible pipe for over 3 times.

- Bend the thin-wall connective pipe

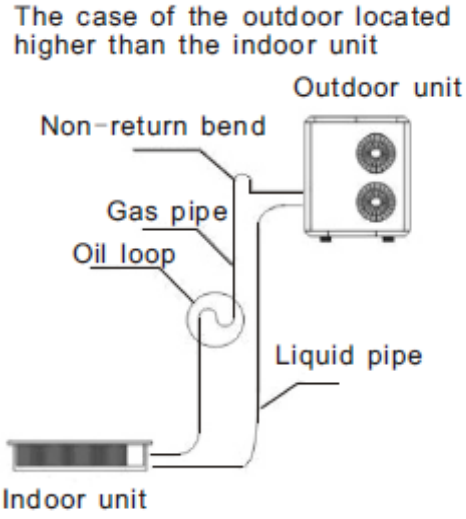
When bending the pipe, cut out a notch of the desired size at the bend of the adiabatic pipe, and then expose the pipe (wrap the pipe with the wrapping tape after bending it).
The radio of the elbow pipe should be as large as possible to prevent flattening or crush.
Use the pipe bender to make close elbow pipe.

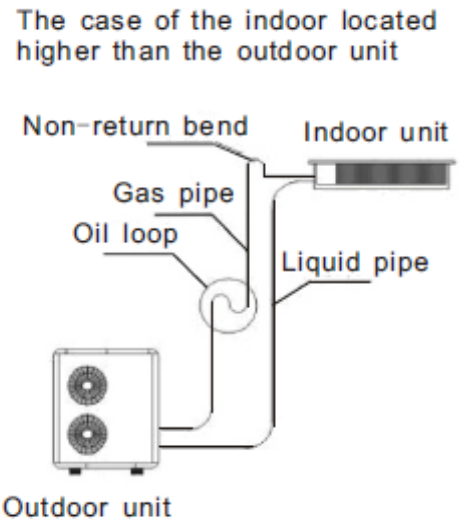
- Use purchased copper pipe

When the cooper pipe is purchased from the market, be sure to use the heat insulation materials of the same type (with a thickness of over 9mm).

- Oil loop and non-return bend

The radius of oil loops shall be as small as possible and one is allocated every 5 meters as shown in the below.





5.2.2 Lay the pipelines

- Drill a hole on the wall, and put the hole sheath and hole cover through the wall.
- Place the connective pipe together with the indoor & outdoor connection wires. Use wrapping tape to tie them tight. Do not let air penetrate into it lest condensation and drips of moist.
- Pull the connective wrapped connective pipe from outdoor through the sheath which gets through the wall, and lead it into the room. Lay out the pipelines carefully to avoid damage.

5.2.3 Make a vacuum of connective pipeline.

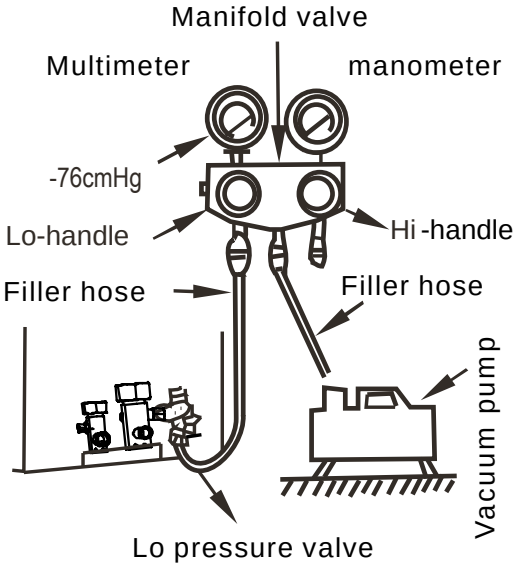
5.2.4 After the above steps are completed, the spool of the valve of the outdoor unit should be completely open, and the refrigerant pipeline of the indoor unit and the outdoor unit should be smooth.

5.2.5. Use leak detector or soap water detect leak carefully to prevent leakage.

5.2.6. Put on an heat resistance envelope at connective pipe adapter of the indoor unit, and wrap it tight with the wrapping tape lest condensate and leakage.

5.3 Expelling Air

5.3.1 Use vacuum pump to expel air.

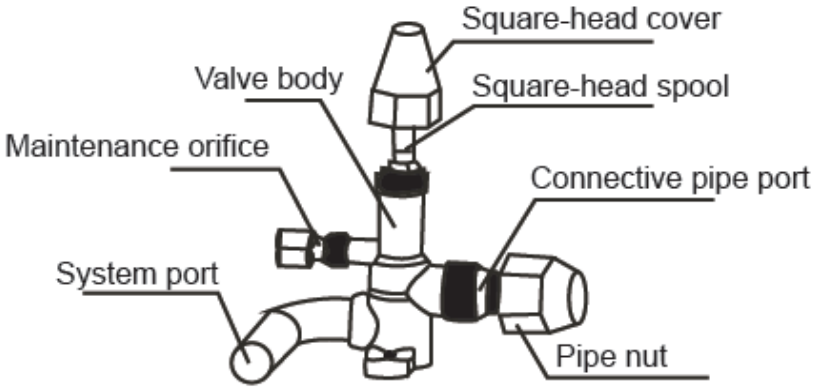


- Loosen and remove the maintenance orifice nut of valve A, and connect the filler hose of the manifold valve to the maintenance orifice of valve A (tighten both valve A and valve B).
- Connect the filler hose adapter to the vacuum pump.
- Open the low pressure (Lo) handle of the manifold valve completely.

- Start the vacuum pump to extract air. At the beginning of extracting air, slightly loosen the maintenance orifice nut of valve B, check whether any air enters it (the vacuum pump noise changes and the multi-meter indicate from negative to 0). Then tighten this maintenance orifice nut.
- Upon completion of vacuuming, tighten the low pressure (Lo) handle of the manifold valve completely and stop the vacuum pump. Keep extracting air for over 15 minutes. Check whether the multi-meter points at -1.0X10 Pa (-76cmHg).
- Loosen and remove the square-head cover of valves A and B. After opening valves A and B completely, tighten the square head cover of valves A and B.
- Remove the filler hose off the maintenance orifice of valve A, and then tighten the nut.

5.3.2 Procedure of using stop valve

- Open the spool until it touches the stop block. Do not attempt to open further.
- Use a spanner or a similar tool to tighten the bonnet. The bonnet tightening torque is shown in Table 3 “Tightening torque”.
- Upon completion of installation, open all valves before trial run. Each unit has two valves of different sizes located at the outdoor unit side. Of the two valves, one is gas valve and the other is liquid valve. The procedure of opening/closing the valve is shown in the right figure
- Procedure of opening the valve: Open the square-head cover, use a spanner to capture the square head and open it thoroughly. Then tighten the square-head cover.
- Procedure of closing the valve: Same as the procedure of opening the valve, but rotate the spanner clockwise thoroughly.



5.4 Leak Detection

Use soap water or a leak detector to check whether gas leakage exists at the adapters.

5.5 Heat Insulation

- Use heat insulation materials to wrap the part protruding outside the flared pipe joint and the refrigerant pipe of the liquid pipe and the gas pipe, and ensure that no gap exists between them.
- Imperfect heat insulation may lead to condensate drips.

5. Additional refrigerant charged

If liquid pipe length is greater than 5 meters, Additional refrigerant must be charged into the system. Charged amount should be calculated by below formula.

R=(L1-5)*0.023+(L2-5)*0.06+(L3-5)*0.12+(L4-5)*0.18+(L5-5)*0.27+(L6-5)*0.38+(L7-5)*0.52+(L8-5)*0.68

Where:

R: Total charged amount

L1: Total length of Φ6.35 liquid pipe L2 Total length of Φ9.53 liquid pipe

L3: Total length of Φ12.7 liquid pipe L4: Total length of Φ16.9 liquid pipe

L5: Total length of Φ19.1 liquid pipe L6: Total length of Φ22.2 liquid pipe

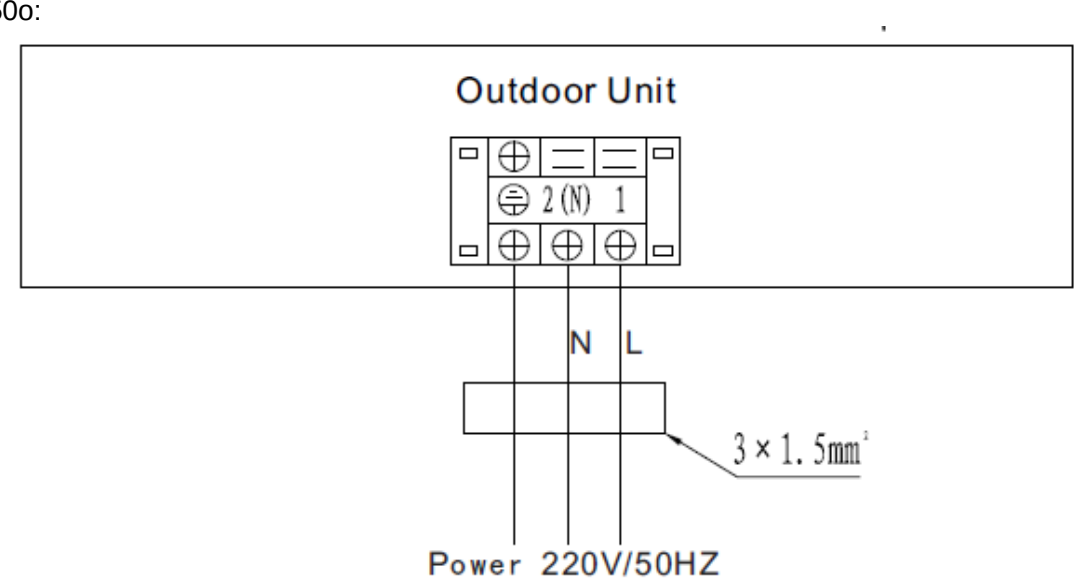
L7: Total length of Φ25.4 liquid pipe L8: Total length of Φ28.6 liquid pipe

6. Field wiring

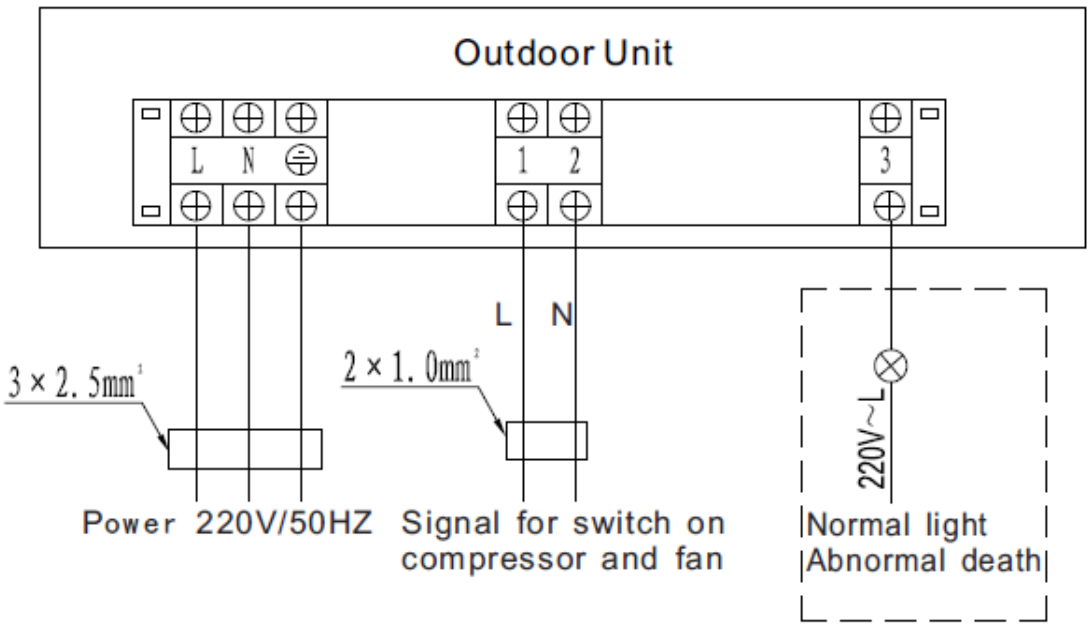
CAUTION:

- Use special power supply for the air conditioner. Design power supplies specific to the indoor unit and outdoor unit. The supply voltage must comply with the nominal voltage.
- The external supply circuit of the air conditioner must have a ground wire, and the power supply ground wire of the indoor unit must be connected with the external ground wire firmly.
- The wiring must be performed by professional technicians according to the circuit diagram labels.
- Distribute the wires according to the relevant electric technical standards promulgated by the State, and set the Residual Current-operated Circuit Breaker (RCCB) properly.
- The power wire and the signal wire shall be laid out neatly and properly, without mutual interference or contacting the connection pipe or valve.
- No power cable is attached to this equipment. The user can select the power cable by reference to the stipulated power supply specifications. No joint of wires is allowed.
- Upon completion of wire connection, double check it and then connect the power supply.

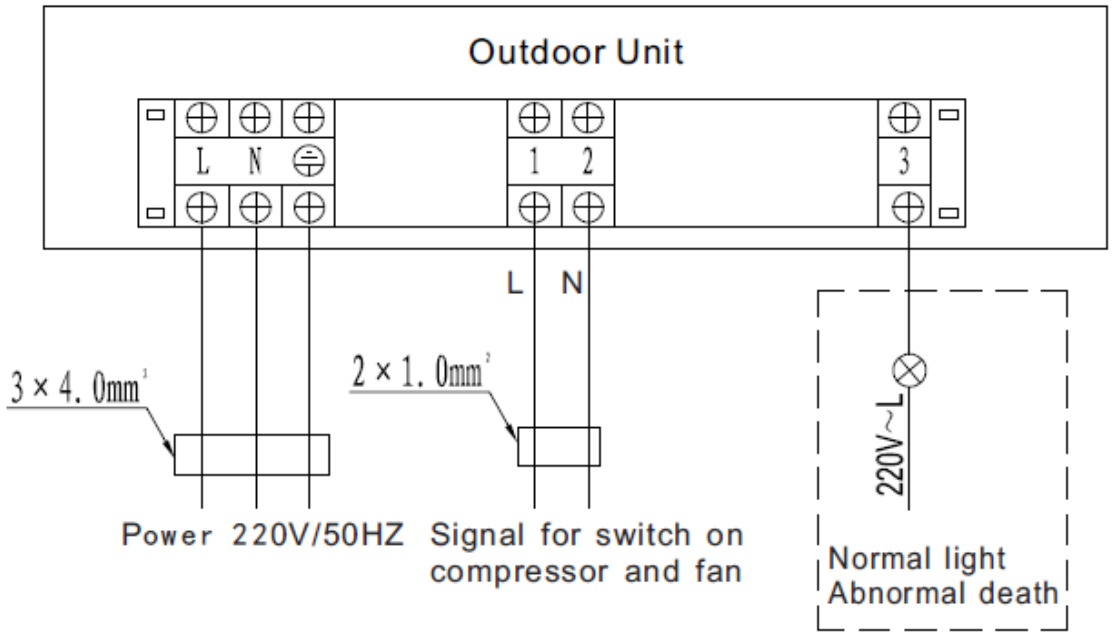
6.1 RCF-50o:



6.2 RCF-70o



6.3 RCF-100o



6.4 RCF-140o

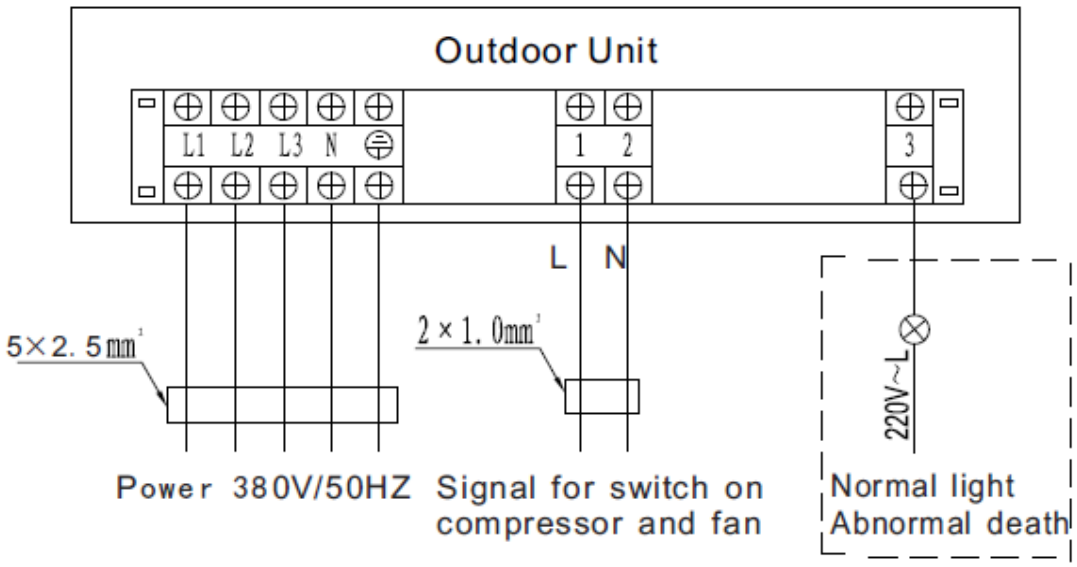
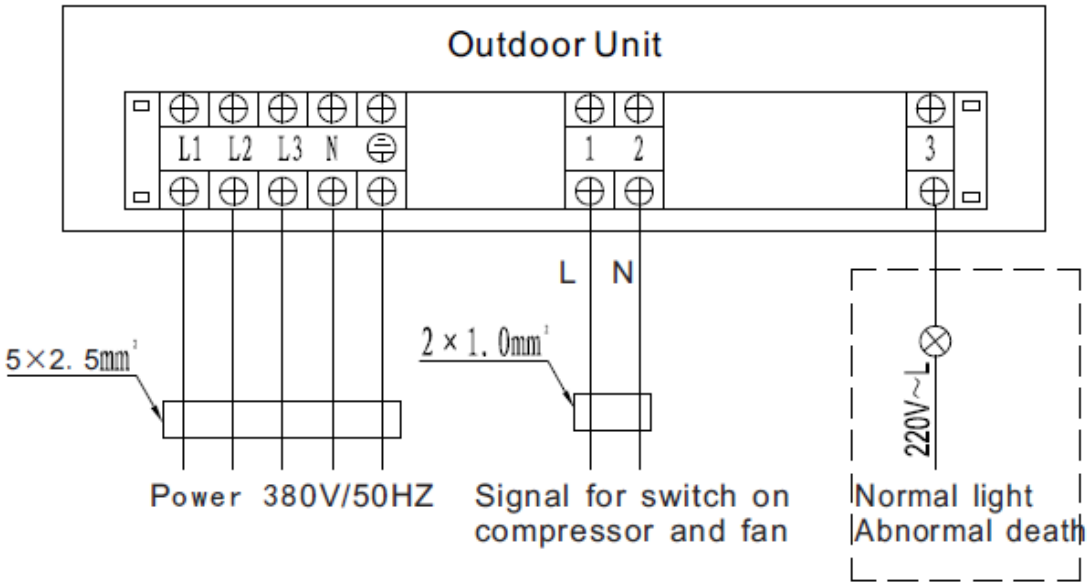
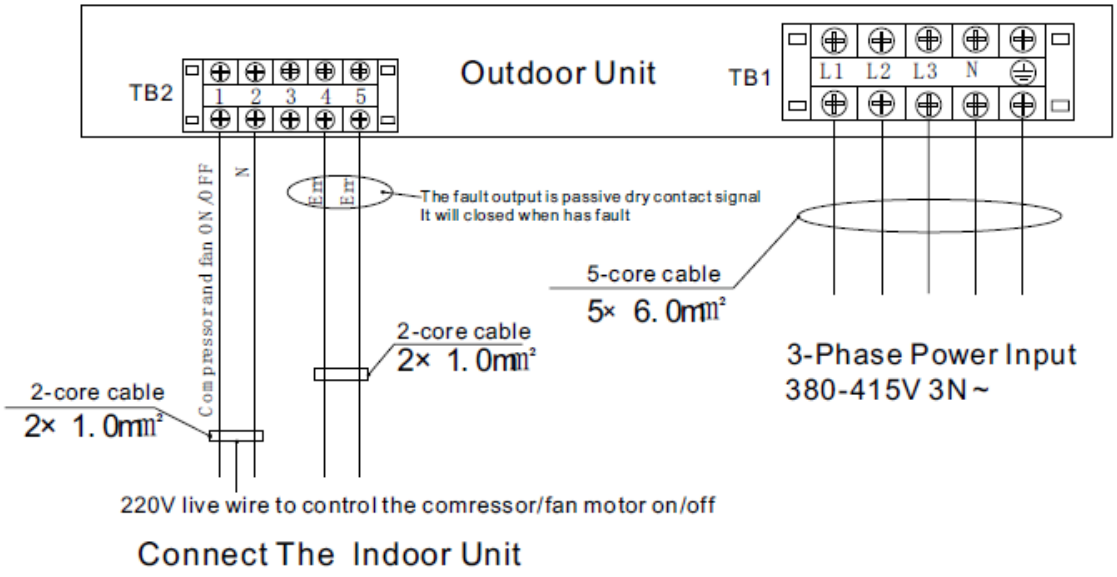


Fig 16 COU-48CR1-A

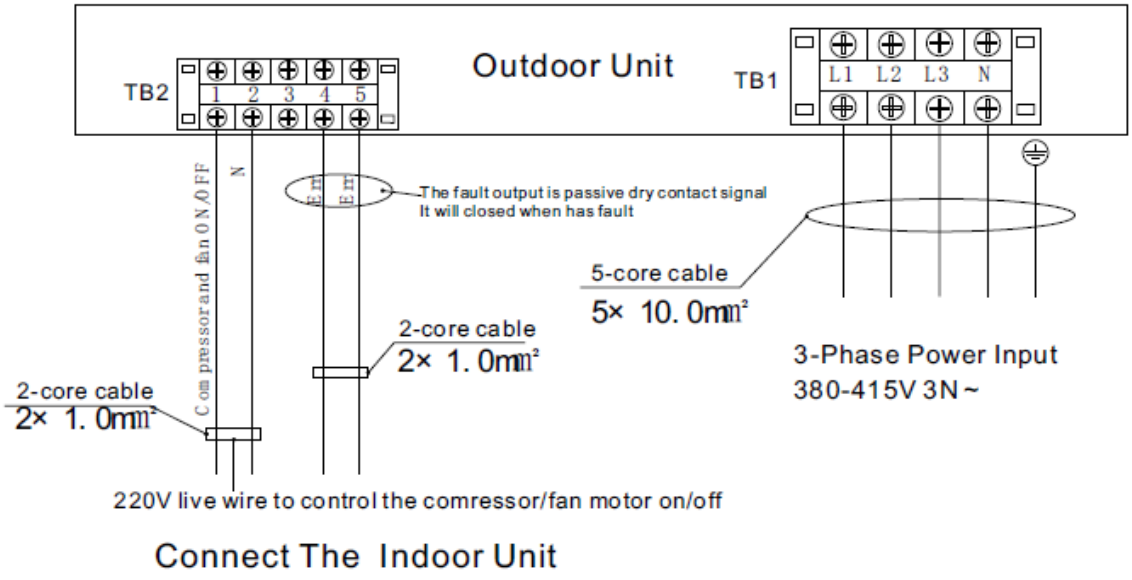
6.5 RCF-160o



6.6 RCF-280o



6.7 RCF-450o



Connect The Indoor Unit

Part 3 Trouble shooting

1. Fault codes table(RCF-50o、RCF-70o、RCF-100o、RCF-140o、RCF-160o)

Type	LED1	Remarks
Run mode	♦	
Phase sequence protection	☆4	Manual reset
Outdoor condenser temp sensor error. Protection of condenser hi-temp.	☆2	
Protection of low pressure	1	Reported three times within an hour of failure is necessary to manually reset
Protection of over-current	☆3	
Protection of dis hi-temp	☆5	
Dis temp sensor error	☆6	

Note:

☆4: Lamp flashes at the speed of 5HZ for 4 times.

♦: Light;

2. Fault codes table(RCF-280o、RCF-450o)

Errors of the units, check the LED lights on PCB:

Type	LED1 RED	LED2 YELLOW	LED3 GREEN	Remarks
Standby	★	★	★	
Run mode	♦	♦	♦	
Phase sequence protection	☆	☆	☆	Manual reset
Outdoor condenser temp sensor error. Protection of condenser hi-temp	◇	☆	☆	
Outdoor ambient temp sensor error	◇	◇	☆	
Protection of low pressure	☆	◇	◇	Reported three times within an hour of failure is necessary to manually reset
Protection of high pressure	☆	◇	☆	
Protection of over-current	◇	☆	◇	