



SERVICE MANUAL

(DC Inverter Free Match R410a)

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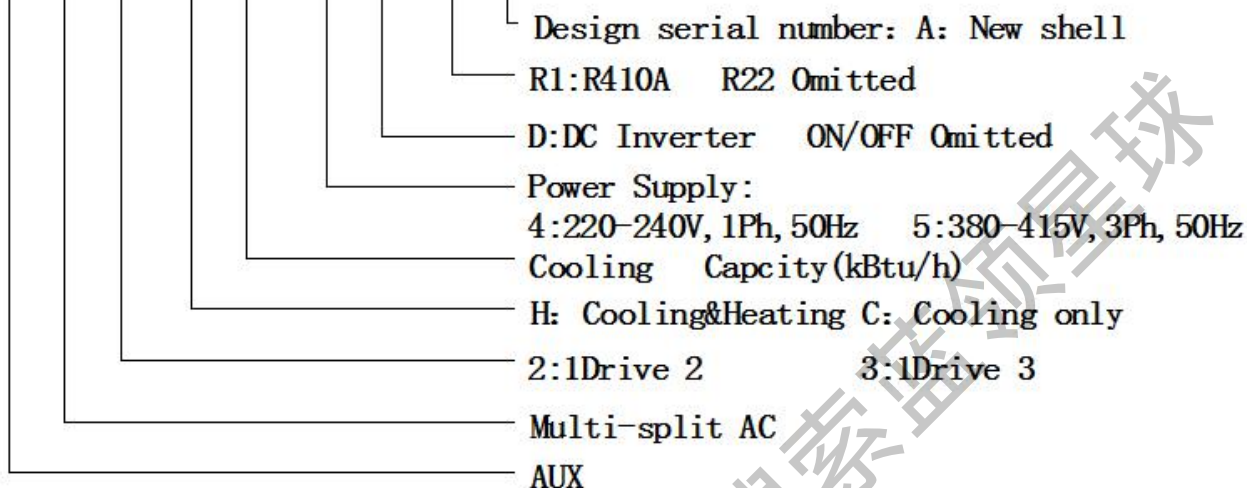
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Part 1 General information

1. Nomenclature

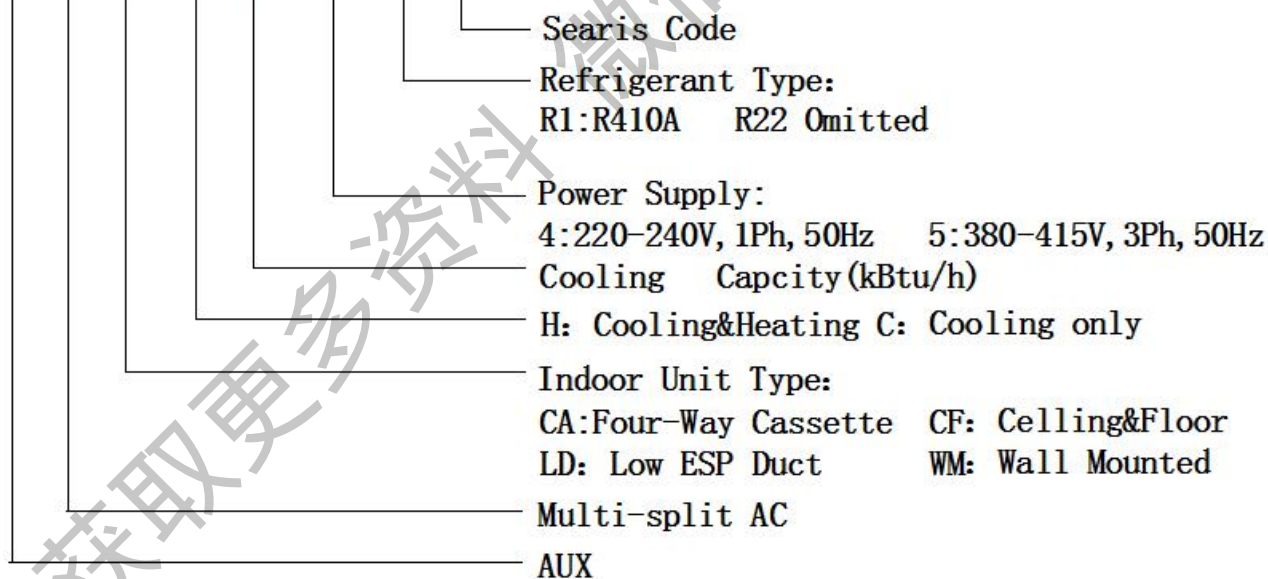
Outdoor Unit

A M 2 H 18 / 4 D R1 A





Indoor Unit

A M WM H 18 / 4 R1 (#)








2. Unit Appearance

| Series | Picture of the indoor unit |
|------------------------------------|--|
| Four-way Cassette (New) |  |
| | 9K~18K Btu/h |
| Ceiling &Floor |  |
| | 9K~18K Btu/h |
| Low ESP Duct |  |
| | 7K~18K Btu/h |
| Wall-mounted (L Series) |  |
| | 7K~18K Btu/h |
| Wall-mounted (F Series) |  |
| | 7K~18K Btu/h |

| Series | Picture of the outdoor unit | | | | |
|-----------------------|---|-----------|-----------|---|-----------|
| Capacity(Btu) | 18000 | 24000 | 27000 | 36000 | 42000 |
| Outdoor Unit (New) |  | | |  | |
| | 1 drive 2 | 1 drive 3 | 1 drive 4 | 1 drive 4 | 1 drive 5 |

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| Combination Table | | Available indoor Unit | Suggested Combination | |
|------------------------------|---|--|-----------------------|--|
| Multi DC Outdoor Unit Series | One Unit | | Two Units | Three Units |
| 1 drive 2 |  | Wall mounted (F Series): 7k/9k/12k/18k Wall mounted (L Series): 7k/9k/12k/18k 4-way Cassette(NEW): 9k/12k/18k Ceiling Floor: 9k/12k/18k Slim Duct: 7k/9k/12k/18k | 7 | 7+7 9+9 |
| | | | 9 | 7+9 9+12 |
| | | | 12 | 7+12 9+18 |
| | | | 18 | 7+18 12+12 |
| 1 drive 3 |  | Wall mounted (F Series): 7k/9k/12k/18k Wall mounted (L Series): 7k/9k/12k/18k 4-way Cassette(NEW): 9k/12k/18k Ceiling Floor: 9k/12k/18k Slim Duct: 7k/9k/12k/18k | 7 | 7+7 9+12 7+7+7 7+12+12 |
| | | | 9 | 7+9 9+18 7+7+9 9+9+9 |
| | | | 12 | 7+12 12+12 7+7+12 9+9+12 |
| | | | 18 | 7+18 12+18 7+9+9 9+12+12 |
| 1 drive 3 |  | Wall mounted (F Series): 7k/9k/12k/18k Wall mounted (L Series): 7k/9k/12k/18k 4-way Cassette(NEW): 9k/12k/18k Ceiling Floor: 9k/12k/18k Slim Duct: 7k/9k/12k/18k | 7 | 7+7 9+12 7+7+7 7+9+12 9+9+18 |
| | | | 9 | 7+9 9+18 7+7+9 7+9+18 9+12+12 |
| | | | 12 | 7+12 12+12 7+7+12 7+12+12 12+12+12 |
| | | | 18 | 7+18 12+18 7+7+18 9+9+9 |
| 1 drive 4 |  | Wall mounted (L Series): 7k/9k/12k/18k 4-way Cassette(NEW): 9k/12k/18k Ceiling Floor: 9k/12k/18k Slim Duct: 7k/9k/12k/18k | 7 | 7+7 9+12 7+7+7 7+9+12 9+9+9 9+18+18 7+7+7+7 7+7+9+12 7+9+9+12 9+9+9+12 |
| | | | 9 | 7+9 9+18 7+7+9 7+9+18 9+9+12 12+12+12 7+7+7+9 7+7+9+18 7+9+9+18 9+9+9+18 |
| | | | 12 | 7+12 12+12 7+7+12 7+12+12 9+9+18 12+12+18 7+7+7+12 7+7+12+12 7+9+12+12 9+9+12+12 |
| | | | 18 | 7+18 12+18 7+7+18 7+12+18 9+12+12 12+18+18 7+7+7+18 7+7+12+18 7+12+12+12 9+12+12+12 |
| 1 drive 5 |  | Wall mounted (L Series): 7k/9k/12k/18k 4-way Cassette(NEW): 9k/12k/18k Ceiling Floor: 9k/12k/18k Slim Duct: 7k/9k/12k/18k | 7 | 7+7 9+12 7+7+7 7+9+12 9+9+9 9+18+18 7+7+7+7 7+7+9+12 7+9+9+9 7+9+18+18 9+9+9+12 9+12+12+12 |
| | | | 9 | 7+9 9+18 7+7+9 7+9+18 9+9+12 12+12+12 7+7+7+9 7+7+9+18 7+9+9+12 7+12+12+12 9+9+9+18 9+12+18+18 |
| | | | 12 | 7+12 12+12 7+7+12 7+12+12 9+9+18 12+12+18 7+7+7+12 7+7+12+12 7+9+9+18 7+12+12+18 9+9+12+12 9+12+18+18 |
| | | | 18 | 7+18 12+18 7+7+18 7+12+18 9+12+12 12+18+18 7+7+7+18 7+7+12+18 7+9+12+12 7+12+18+18 9+9+12+18 12+12+12+12 |
| | | | Five Units | |
| | | | 7+7+7+7+7 | 7+7+7+7+9 7+7+7+9+12 7+7+9+9+9 7+9+9+12+18 9+9+9+9+9 9+9+9+12+12 9+12+12+12+12 |
| | | | 7+7+7+7+9 | 7+7+7+9+9 7+7+7+12+12 7+7+9+9+12 7+7+9+12+18 7+9+9+9+12 7+9+12+12+12 9+9+9+12+18 |
| | | | 7+7+7+7+12 | 7+7+7+9+12 7+7+7+12+18 7+7+9+9+18 7+7+12+12+12 7+9+9+9+18 7+12+12+12+12 9+9+12+12+12 |

*Note:

- ① All of the above indoor unit can be freely matched and combined, but must be installed strictly according to the above table. Or the cooling capacity and stability would be decreased.
- ② The wall mounted indoor unit(F series) cannot be matched with the 36/42K outdoor unit.

Part 2 Indoor unit

| | |
|---------------------------|----|
| Four-way cassette..... | 5 |
| Ceiling & floor type..... | 22 |
| Low ESP Ducted Type..... | 35 |
| Wall Mounted Type..... | 49 |

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Four-way cassette

| | |
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1. Function Introduction

| Function | Name | AMCA-H*/4R1A | | |
|----------------------|---|--------------|----|----|
| | | 09 | 12 | 18 |
| Protection Function | Anti-freeze protection | ○ | ○ | ○ |
| | Sensor failure alarm | ○ | ○ | ○ |
| | Error code display function | ○ | ○ | ○ |
| Comfortable Function | Cooling | ○ | ○ | ○ |
| | Heating | ○ | ○ | ○ |
| | 3 fan speed | ○ | ○ | ○ |
| | Auto-restart (optional) | ○ | ○ | ○ |
| | Anti-cold wind | ○ | ○ | ○ |
| | Blow exhaust heat | ○ | ○ | ○ |
| | Timer | ○ | ○ | ○ |
| Opretating display | Clock display | ○ | ○ | ○ |
| | Operating mode display | ○ | ○ | ○ |
| | Fan speed display | ○ | ○ | ○ |
| | Defrosting display | ○ | ○ | ○ |
| | Timing on/off display | ○ | ○ | ○ |
| | Sleeping display | ○ | ○ | ○ |
| Operation mode | Auto/Cool/Dry/Heat | ○ | ○ | ○ |
| | Dehumidify operation | ○ | ○ | ○ |
| | Auto defrosting | ○ | ○ | ○ |
| | Ventilation function | ○ | ○ | ○ |
| Health function | Removable air filter | ○ | ○ | ○ |
| | Fresh air function preserved | ○ | ○ | ○ |
| | Installation instruction plate is available | ○ | ○ | ○ |

2. Specification

| Model | Indoor | Unit | AMCA-H09/4R1A | AMCA-H12/4R1A | AMCA-H18/4R1A |
|------------------|------------------------------|-------------------|--------------------------|--------------------------|--------------------------|
| Capacity | Cooling | Btu/h | 9560(5120-12115) | 12285(5800-12625) | 17060(8530-19107) |
| | | kW | 2.80(1.50-3.55) | 3.60(1.70-3.70) | 5.0(2.50-5.6) |
| | Heating | Btu/h | 10240(5460-13000) | 13306(6930-15080) | 19107(10340-24000) |
| | | kW | 3.00(1.60-3.81) | 3.9(2.03-4.42) | 5.6(3.03-7.03) |
| Electric Data | Power Supply | V~,Hz,Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power Input | W | 70(17.5-109) | 70(17.5-109) | 70(17.5-109) |
| | Heating Power Input | W | 70(17.5-109) | 70(17.5-109) | 70(17.5-109) |
| Fan Motor | Model | / | XD30B | XD30B | XD30B |
| | Output Power | W | 30 | 30 | 30 |
| | Capacitor | uF | 2.0 | 2.0 | 2.0 |
| | Speed (Hi/Mi/Lo) | r/min | 839/757/688 | 839/757/688 | 839/757/688 |
| Indoor Coil | Number Of Row | / | 2 | 2 | 2 |
| | Tube Pitchx Row Pitch | mm | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 |
| | Fin Pitch | mm | 1.5 | 1.5 | 1.5 |
| | Fin Material | / | Hydrophilic aluminum fin | Hydrophilic aluminum fin | Hydrophilic aluminum fin |
| | Tube Outside Dia.&Material | mm | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved |
| | Coil Length x Height x Width | mm | 1352x205x 25.4 | 1352x205x 25.4 | 1352x205x 25.4 |
| | Heat Exchanging Area | m ² | 5.76 | 5.76 | 5.76 |
| Performance | Air Flow Volume | m ³ /h | 700/600/530 | 700/600/530 | 700/600/530 |
| | Sound Pressure Level | dB(A) | 45/41/35 | 45/41/35 | 45/41/35 |
| Dimension | Net Dim (W*D*H) | mm | 570×570×260 | 570×570×260 | 570×570×260 |
| | Packing Dim (W*D*H) | mm | 635x635x290 | 635x635x290 | 635x635x290 |
| | Net(Panel) | mm | 650x650x55 | 650x650x55 | 650x650x55 |
| | Packing(Panel) | mm | 710x710x80 | 710x710x80 | 710x710x80 |
| Weight | Net(Body) | kg | 18 | 18 | 18 |
| | Gross(Body) | kg | 21 | 21 | 21 |
| | Net(Panel) | kg | 3 | 3 | 3 |
| | Gross(Panel) | kg | 5 | 5 | 5 |
| Refrigerant Type | / | R410a | R410a | R410a | |
| Pipe Dia | Liquid Side | mm(inch) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) |
| | Gas Side | mm(inch) | 12.7(1/2) | 12.7(1/2) | 12.7(1/2) |
| | Drainage | mm | 20 | 20 | 20 |
| Loading Qty | 20/40/40H | unit | 150/315/354 | 150/315/354 | 150/315/354 |

Note:

- Cooling capacity test Condition:(27°CDB,19°CWB Indoor/35°CDB,24°CWB Outdoor);
Heating capacity test Condition:(20°CDB Indoor/7°CDB,6°CWB Outdoor);
connecting pipe length: 5M.
- Datas may be changed with unit improvement. We keep the right to change the datas or specifications without prior notice, please follow the datas listed on the nameplate.

3. Capacity Amendment

3.1 Running range

| | | | | |
|--------------------------|---------|----------------|-------|-------|
| Cooling capacity (Btu/h) | | 9000 | 12000 | 18000 |
| Power supply | | 220-240V~/50Hz | | |
| Voltage | | 187~253V | | |
| Ambient temperature | Cooling | -10~52℃ | | |
| | Heating | -15~24℃ | | |

3.2 Amendment coefficient of cooling capacity under different indoor/outdoor temperature(K1)

| Indoor temperature(℃) | | Outdoor temperature(DB) | | | | | |
|-----------------------|----|-------------------------|------|------|------|------|------|
| DB | WB | 25 | 30 | 35 | 40 | 45 | 50 |
| 22 | 15 | 0.97 | 0.92 | 0.87 | 0.96 | 0.77 | 0.75 |
| 24 | 17 | 1.03 | 0.98 | 0.94 | 0.89 | 0.84 | 0.80 |
| 27 | 19 | 1.10 | 1.05 | 1 | 0.95 | 0.90 | 0.86 |
| 29 | 21 | 1.16 | 1.11 | 1.06 | 1.02 | 0.96 | 0.91 |
| 32 | 23 | 1.22 | 1.17 | 1.13 | 1.08 | 1.02 | 0.98 |

Actual cooling capacity calculation:

Actual cooling capacity=amendment coefficient of cooling capacity × nominal cooling capacity

——nominal cooling capacity could be found from the performance parameters list

——amendment coefficient of cooling capacity could be found from table above.

3.3 Amendment coefficient of heating capacity under different indoor/outdoor DB/WB temperature K2

| Outdoor temperature(℃) | | Indoor temperature(DB) | | |
|------------------------|-----|------------------------|------|------|
| DB | WB | 15 | 20 | 25 |
| -15 | -16 | 0.64 | 0.59 | 0.55 |
| -10 | -12 | 0.71 | 0.66 | 0.62 |
| -7 | -8 | 0.76 | 0.72 | 0.67 |
| -1 | -2 | 0.79 | 0.74 | 0.70 |
| 2 | 1 | 0.81 | 0.76 | 0.72 |
| 7 | 6 | 1.04 | 1 | 0.96 |
| 10 | 9 | 1.10 | 1.06 | 1.01 |
| 15 | 12 | 1.16 | 1.12 | 1.07 |

Actual heating capacity calculation:

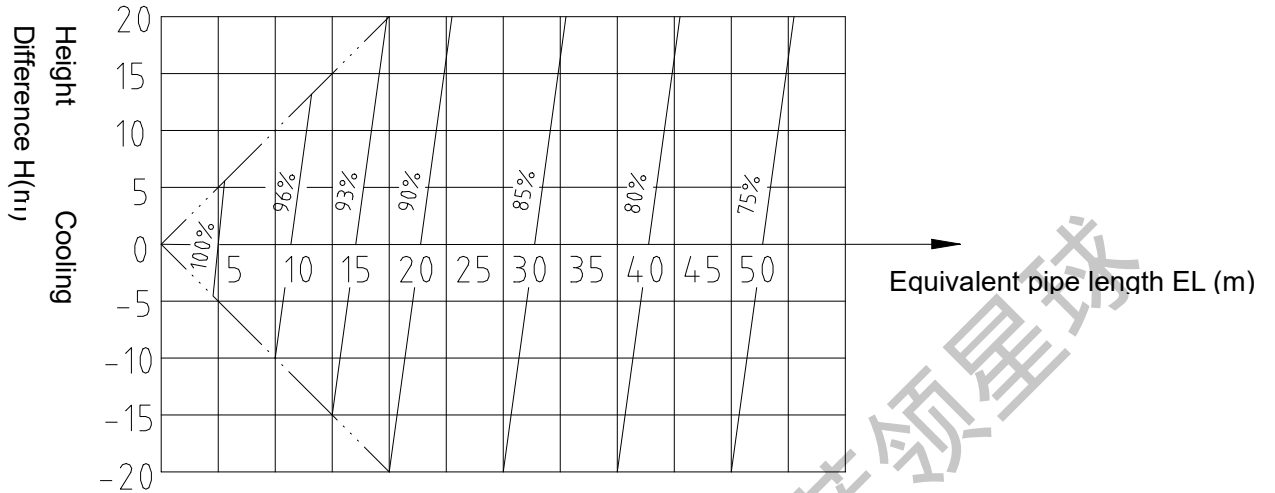
Actual heating capacity=amendment coefficient of heating capacity × nominal heating capacity

——nominal heating capacity could be found from the performance parameters list

——amendment coefficient of heating capacity could be found from table above.

3.4 Amendment coefficients of heating and cooling capacity under different height drop K3

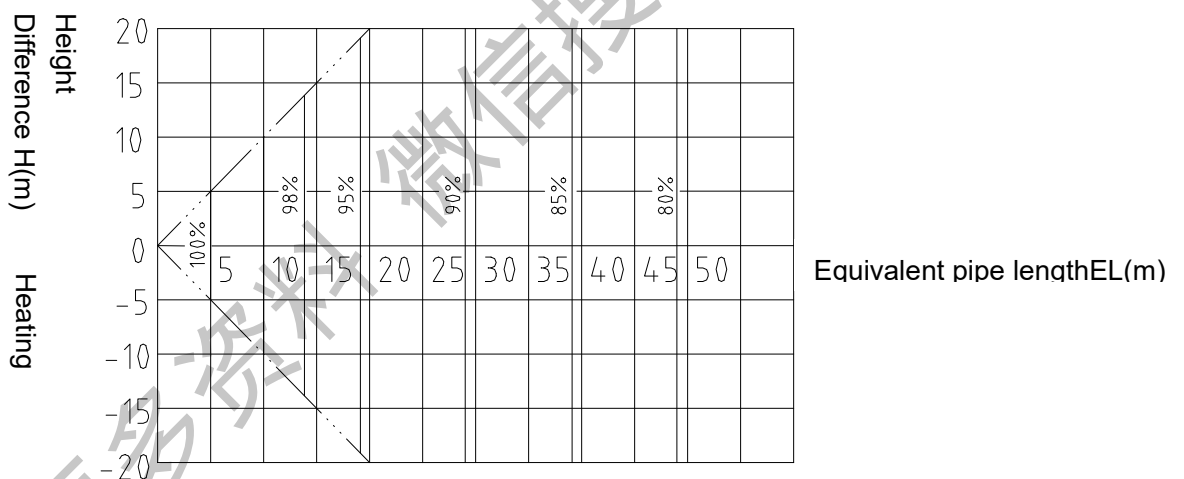
Different Cooling Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

Different Heating Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

3.5 Correction capability

Cooling capacity = nominal cooling capacity xK1xK3

Heating capacity = nominal heating capacity xK2xK3

3.6 Equivalent Pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Bend and Oil Loop Conversion tablet

| Type Pipe Dia.(mm) | Bend | Oil Loop |
|-----------------------|------|----------|
| 6.35 | 0.10 | 0.7 |
| 9.52 | 0.18 | 1.3 |
| 12.70 | 0.20 | 1.5 |
| 15.88 | 0.25 | 2.0 |
| 19.05 | 0.35 | 2.4 |
| 22.02 | 0.40 | 3.0 |

Equivalent Pipe length L = Actual Pipe length L + Bend Qty × Equivalent pipe bend length + Oil Loop Qty × Equivalent Oil Loop length

Sample:

AMCA-H09/4R1A Actual Pipe length is 25 meters, Gas pipe diameter is 9.52mm. If there's 5 bends and 2 oil loops during the installation, then the equivalent pipe length should be:

$$L = 25 + 0.18 \times 5 + 1.3 \times 2 = 28.5(m)$$

◇ Specification of Connection Pipe for Indoor Unit and Outdoor Unit

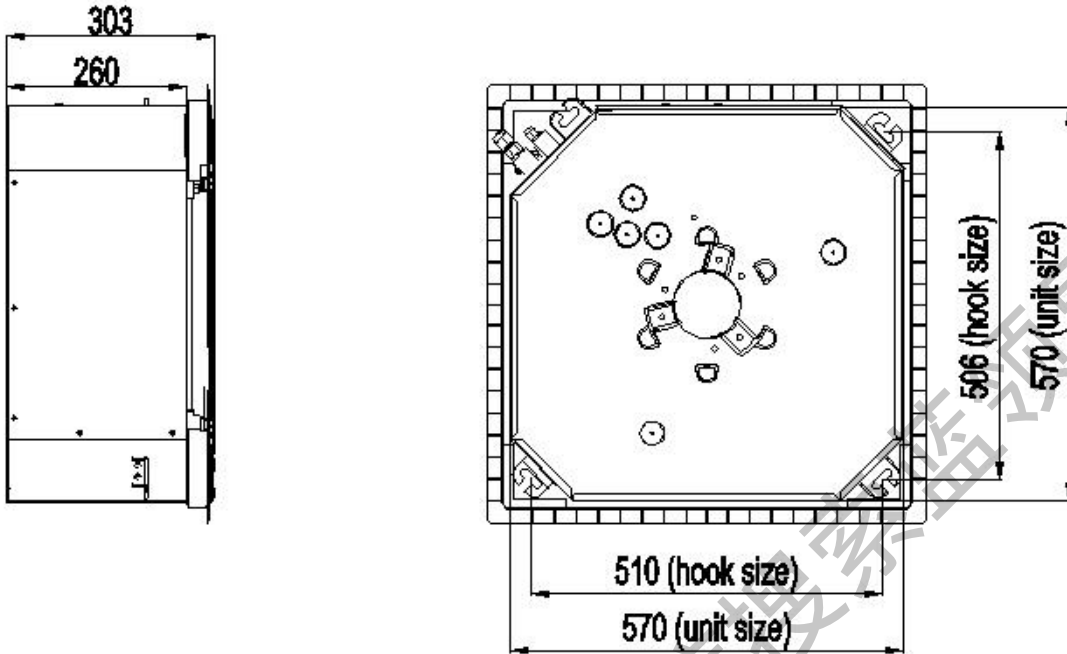
| Cooling Capacity(Btu/h) | | 9000 | 12000 | 18000 |
|--|-------------|-------|-------|-------|
| Connection Pipe (mm) | Liquid Pipe | Φ6.35 | | |
| | Gas Pipe | Φ12.7 | | |
| Max. Length(Each) | | 15 | | |
| Max. Height (m) | | 10 | | |
| Max. Bend Qty | | 5 | | |
| Extra R410a per meter when the pipe length is more than 5 meter (kg) | | 0.022 | | |

Caution:

1. The standard Pipe length is 5m, if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above Charging Data
2. The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;
3. If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 5m, an oil trap should be installed in the gas pipe for every 10 meters.

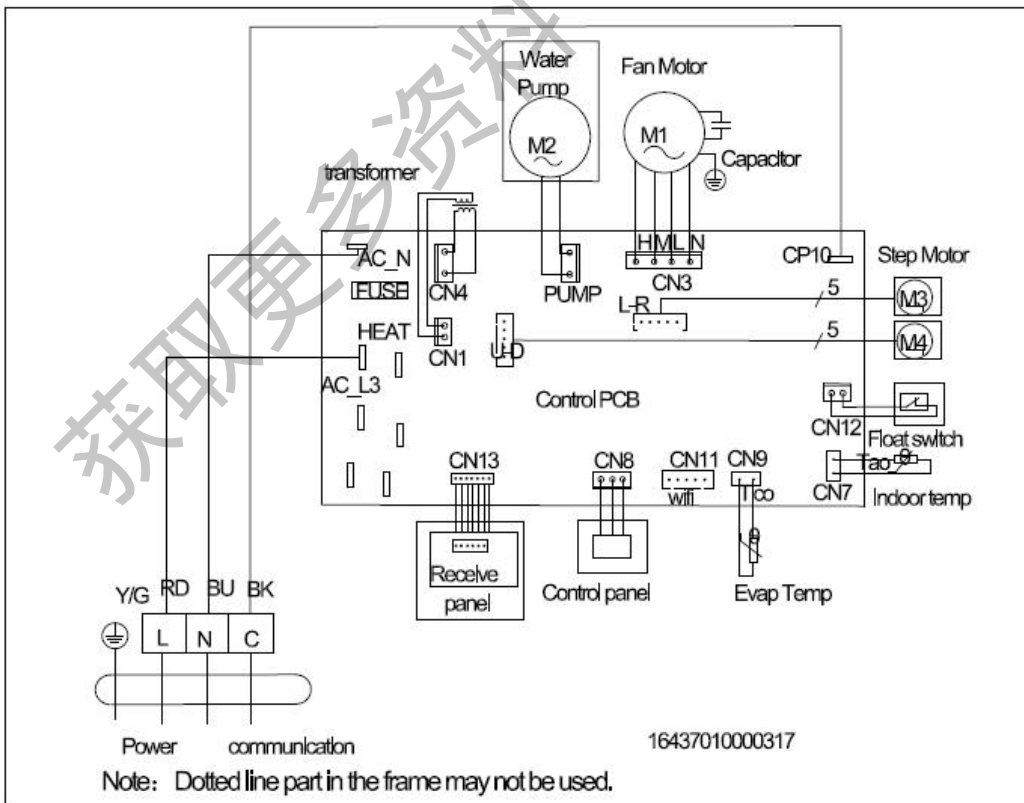
4. Dimension

AMCA-H09/4R1A, AMCA-H12/4R1A, AMCA-H18/4R1A



5. Electrical Diagram

AMCA-H09/4R1A, AMCA-H12/4R1A, AMCA-H18/4R1A



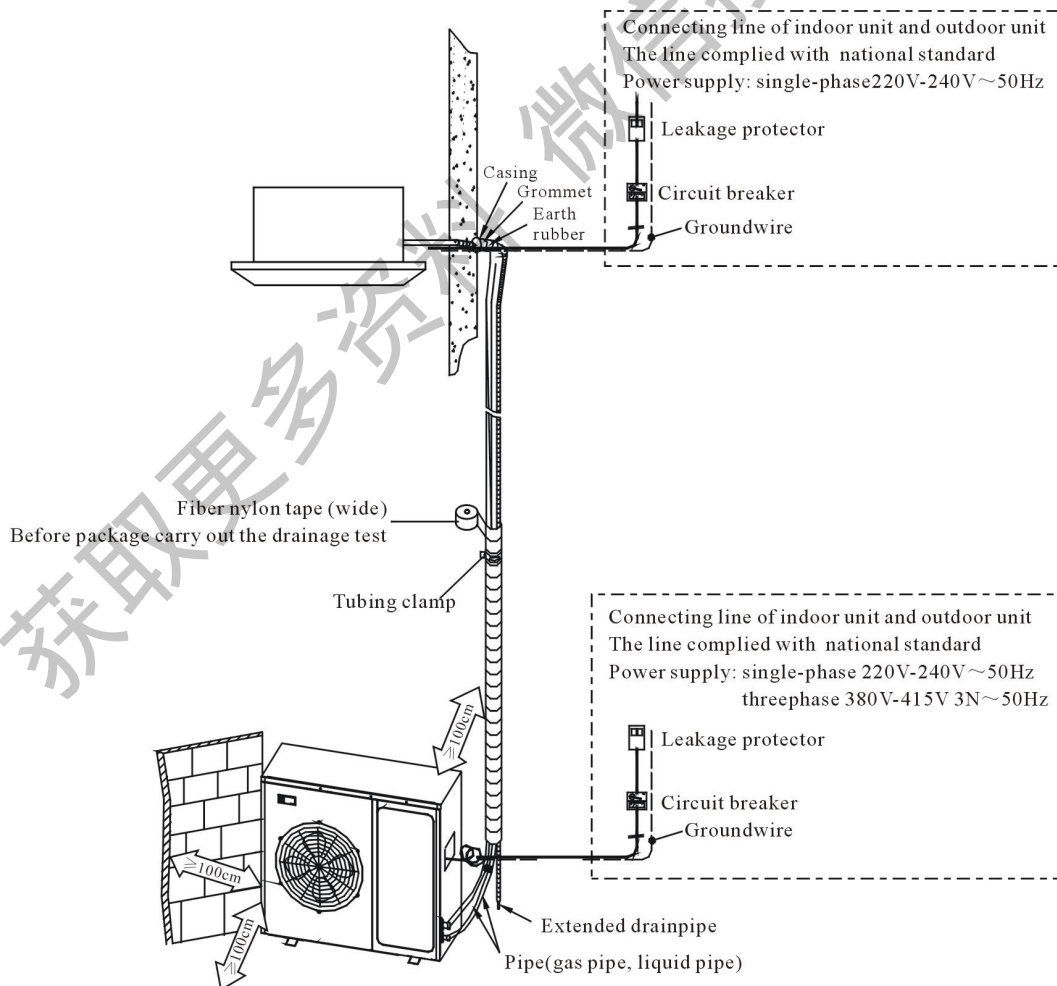
6. Installation

6.1 Preparation before installation

6.1.1 Please buy following spare parts from your local market before installation

| | |
|----|---|
| 1 | Hung bolts M12, 4 pcs |
| 2 | Drainage pipe PVC |
| 3 | Copper pipe |
| 4 | Adhesive belt (big size) 5 pcs, (small size) 5 pcs |
| 5 | Heat insulation material used to connect copper pipe (PE foam material, its thickness is more than 8mm) |
| 6 | Power cable, electrical wire between indoor and outdoor unit (Must be in accordance with the wire diameter in the wiring diagram) |
| 7 | Acetylene cylinders, oxygen cylinders (when longer pipe used it should be welded) |
| 8 | One set pipe cut machine. (cut copper pipe) |
| 9 | Refrigerant cans, electronic balance (when longer pipe used additional gas should be charged) |
| 10 | Pressure gauges, pipe clamp, welding torch, 2B silver electrode |
| 11 | Wrench 2 pcs, one of them is with adjustable torque wrench(42N.m,65N.m,100N.m) |
| 12 | Nitrogen cylinder (in order to prevent oxidation when welding, using Nitrogen to replace the air) |

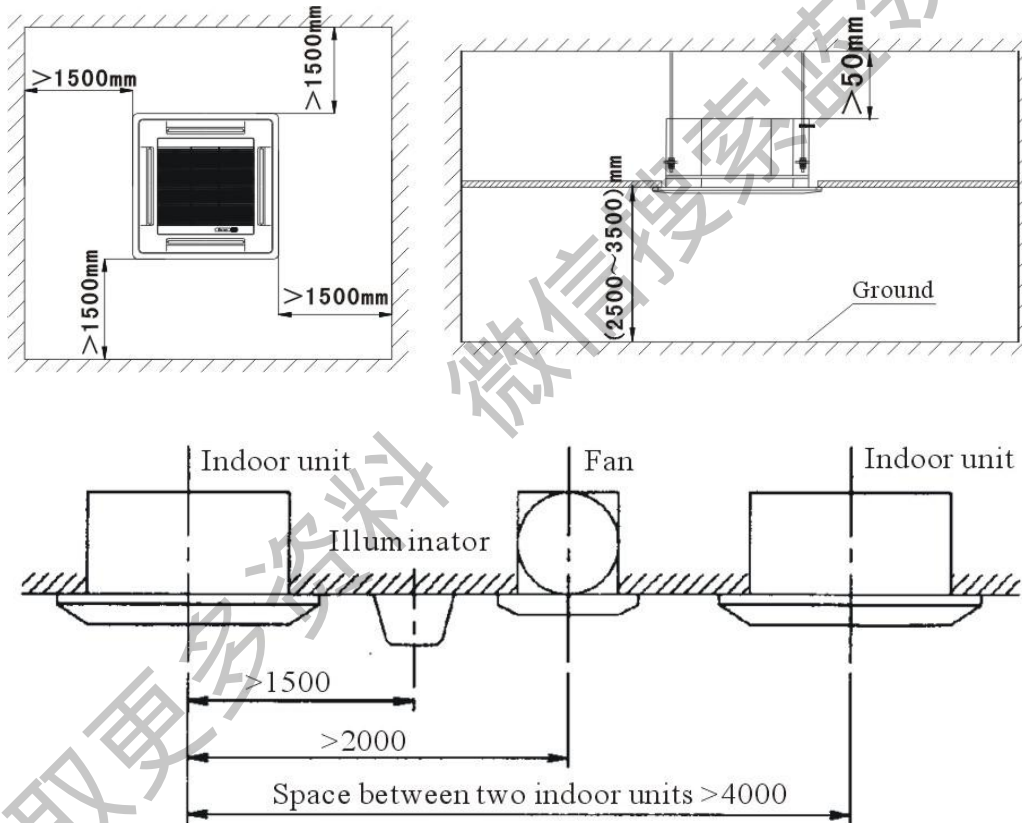
6.2 Installation drawing



6.3 Installation precaution

- ◇ Hanging location should be able to support the unit's weight, there should be no increase in noise and vibration. If the hanging location needs reinforcement, it should be reinforced before installation;
- ◇ Choose the space above the ceiling that can put the indoor unit inside;
- ◇ The location should be easy for drainage;
- ◇ The unit should not be installed in the heat source, steam or oil mist source (such as machine room, kitchen, laundry room, mechanical workshop, etc.)
- ◇ Choose the location at least 1 meter away from TV and radio, in order to avoid interference to them
- ◇ There should be certain distance between indoor unit and obstacles for maintenance;
- ◇ In case of leakage of refrigerant, units should immediately stop running, and contact with maintenance personnel in time. There must be no fire at the site, because the refrigerant will turn to harmful gas when get to the fire.

6.4 The distance between indoor unit and obstacle



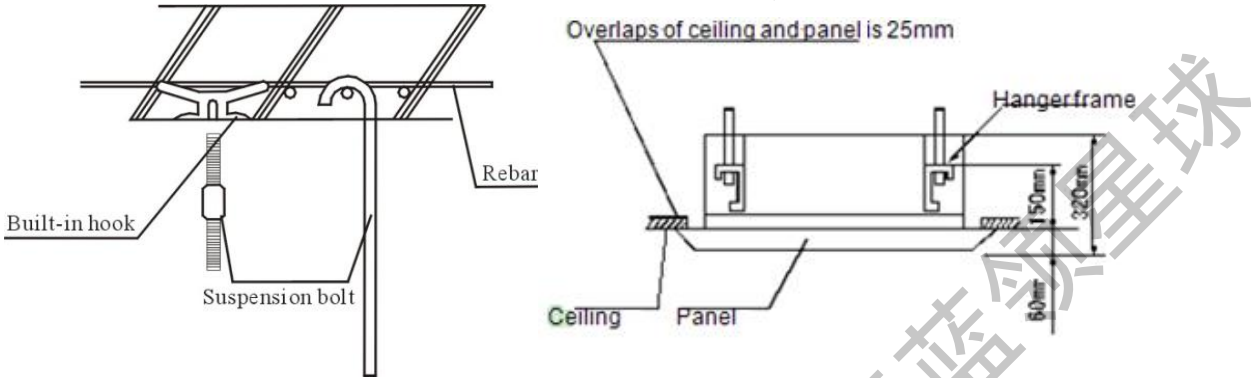
6.5 Indoor unit suspension

- ◇ Select the suspension foundation:

The suspension foundation is a structure of either wooden frame or reinforced concrete. It must be firm and reliable to bear at least 4 times weight of itself and capable of bearing vibration for long periods.

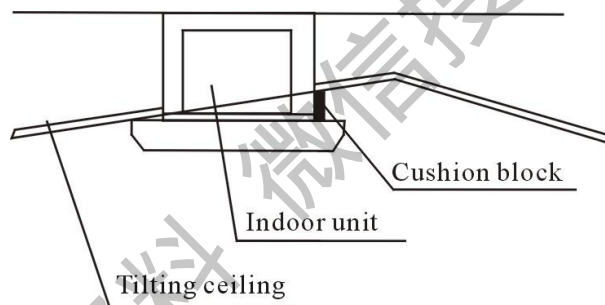
- ◇ Fixing of suspension foundation:

- ◇ Fix the suspension bolts either as shown in the picture or by a steel or wooden bracket.

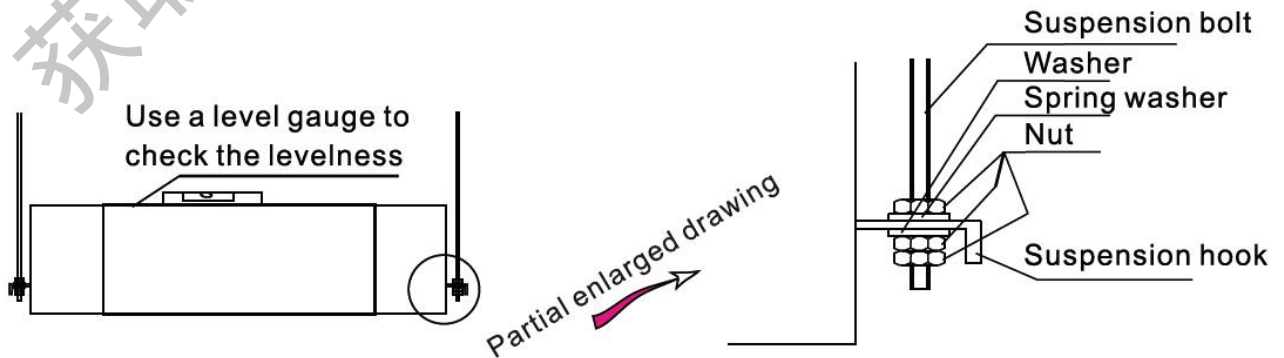


- ◇ If this unit is installed on a sloping ceiling, a cushion block should be installed between the ceiling and the air outlet panel, in order to ensure that the unit is installed on a level surface.

This is as shown in the drawing as follows:

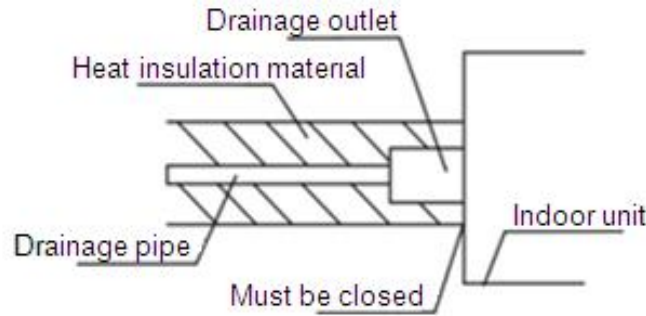


- ◇ Adjust the relative position of the suspension hook on the suspension bolt so that the unit can be in level position in all directions. Check with a level gauge after installation to ensure that the indoor unit is horizontal, otherwise it will cause water leakage, air leakage etc.
- ◇ Tighten the bolt and ensure that four hooks are in close contact with the nuts and washers, to fix the indoor unit under the ceiling.
- ◇ After the unit is installed ensure it is secure and does not shake or sway.
- ◇ Ensure that the centre of the indoor unit is in alignment with the centre of the opening in the ceiling.

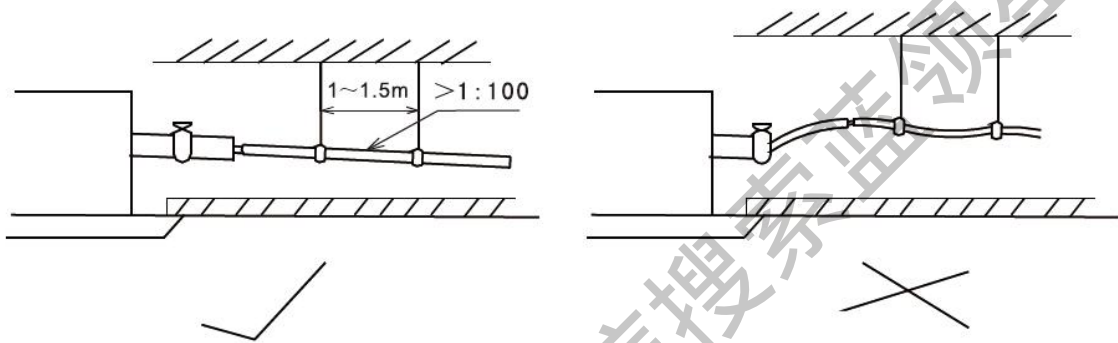


6.6 Drainage pipe installation

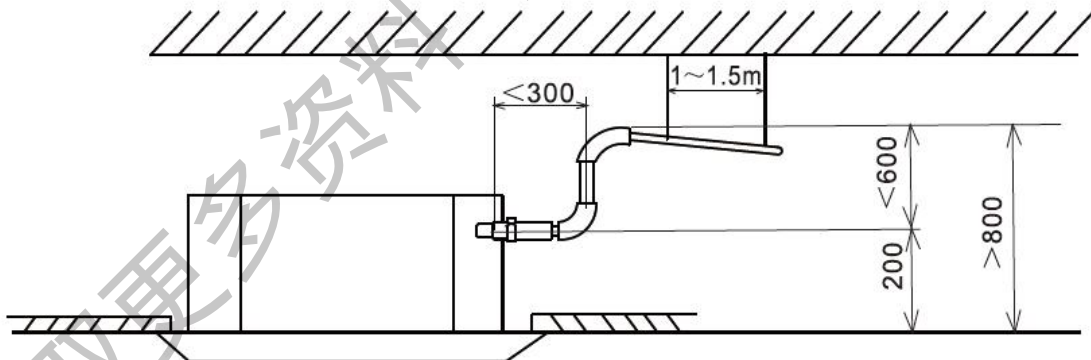
The drainage pipe should be properly insulated to prevent the generation of condensation. Heat insulation material: the thickness of rubber insulation pipe should be more than 8mm



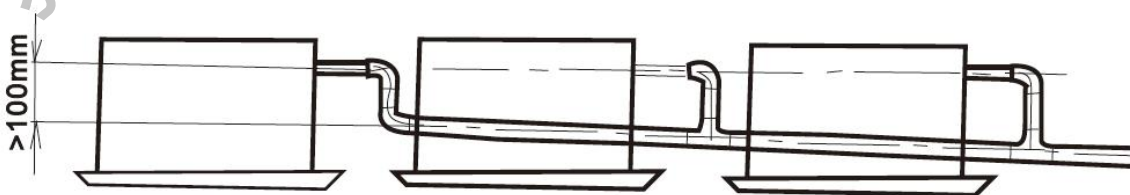
- ◇ Drainage pipe must have a downward gradient (1 / 50 1 / 100) to avoid water backflow or leakage etc.



- ◇ The unit has a drain pump which will lift up to 1200mm. However after the pump stops the water left in the pipe will drain back and may overflow the drain tray causing water leakage. For this reason please install the drain pipe as shown



- ◇ When draining multiple units into a common drain line, this common drain should be installed about 100mm below each units drain outlet, as shown in the drawing.

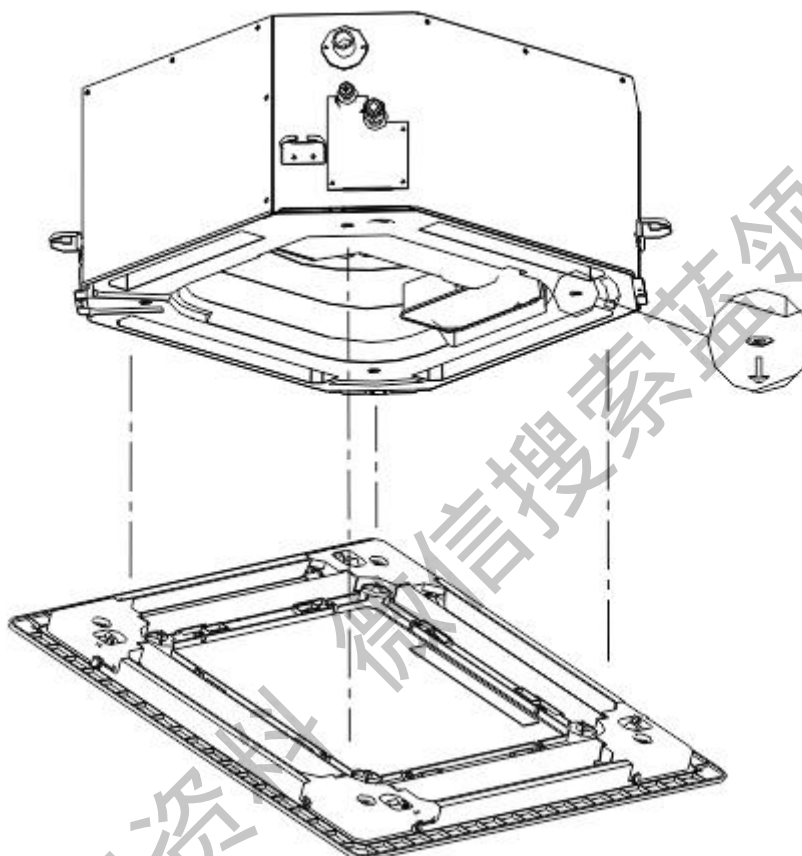


- ◇ When finish installation please carry out the drainage test to ensure that the water flow through the

pipeline fluently, and carefully observe the junction to ensure that there is no water leakage. If the unit is installed in the newly built house, strongly recommend that this test taken before the ceiling installation. Even it is the heating only unit, this test is unavoidable.

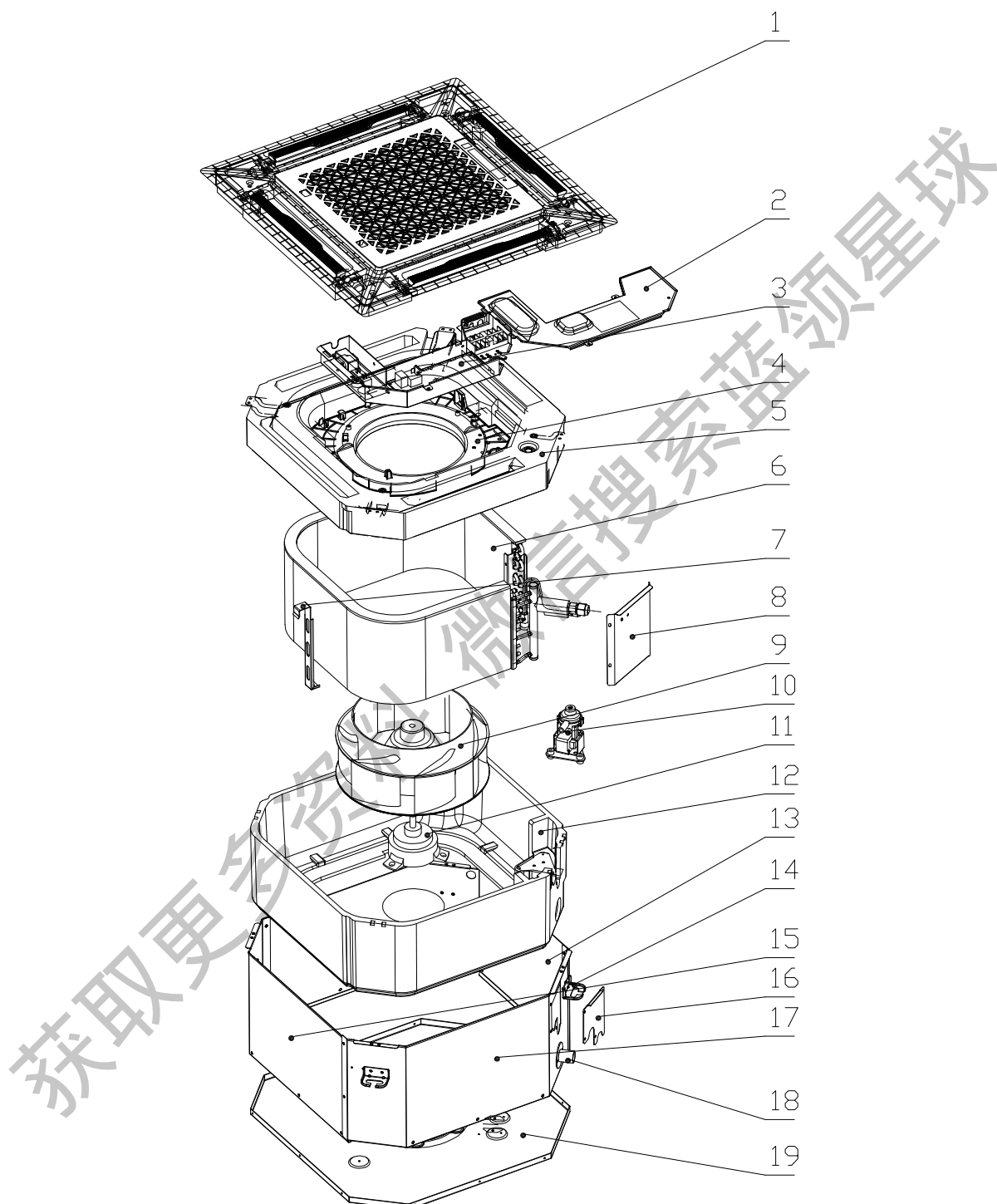
6.7 Panel installation

As to the MB13 panel please refer to the following picture, the panel has four hooks which attach to corresponding hangers on the unit and the panel should be positioned using these first. The panel is then fixed into position by four bolts which are accessed through the four corner panels on the grille.



7. Explode view

AMCA-H09/4R1A, AMCA-H12/4R1A, AMCA-H18/4R1A



| No. | BOM Code | Part Name | Qty | Remark |
|------|----------------|-------------------------------|-----|--------------------------------|
| 1 | 16108022000016 | Panel MB13 new | 1 | |
| 1.1 | 16420010000015 | Return-air grille assembly | 1 | |
| 1.2 | 16420012000012 | Air filter net | 1 | |
| 1.3 | 16420007000023 | guide wind vane | 4 | |
| 1.4 | 16430001000133 | Step motor | 4 | 24BYJ48-2 |
| 1.5 | 16422015000007 | Display board | 1 | SX-DISP-01 |
| 1.6 | 16420014000035 | Panel frame assembly | 1 | |
| 2 | 16321005000025 | Cover for electric components | 1 | |
| 3 | 16330001000016 | Electric assembly | 1 | |
| 3.1 | 11330010000089 | capacitance | 1 | 2.5μF/450V a.c |
| 3.2 | 11222542000029 | PCB board | 1 | QRD-SN3F(18-60)K(485)-SYE1(SY) |
| 3.3 | 16422005000017 | Transformer | 1 | TDB-14-B4B(PTC) |
| 3.4 | 16427001000064 | Terminal board | 1 | 600V 2.5mm2 |
| 3.5 | 16430007000007 | Sensor 1 | 1 | 20K3950 XH2 |
| 3.6 | 16430007000003 | Sensor 2 | 1 | 15K3950 XH2 |
| 4 | 16320005000040 | Water pan | 1 | |
| 5 | 16432016000037 | Rubber plug | 1 | |
| 6 | 16324005000082 | Evap assembly | 1 | |
| 6.1 | 16325005000086 | Evap part | 1 | |
| 6.2 | 16325005000087 | Evap outlet tube assembly | 1 | |
| 6.3 | 16421024000110 | Evap inlet tube assembly | 1 | |
| 7 | 16421007000143 | Evap Pothook | 2 | |
| 8 | 16444001000037 | Evaporator connect board | 1 | |
| 9 | 16330005000017 | Wind wheel | 1 | Φ283×166 |
| 10 | 16421026000368 | Drain pump | 1 | PLD-700 |
| 10.1 | 16430001000638 | Bodder switch | 1 | |
| 10.2 | 16421040000053 | Drain pump support | 1 | |
| 11 | 16430001000638 | Fan motor | 1 | XD30B |
| 12 | 16421040000042 | Water pan holder | 1 | |
| 13 | 16421010000073 | Air Blower EPS | 4 | |
| 14 | 16421014000089 | Pothook | 4 | |
| 15 | 16421010000072 | Boarding A | 1 | |
| 15.1 | 16432019000008 | Boarding B | 1 | |
| 16 | 16321001000071 | Valve board | 1 | |
| 17 | 16108022000016 | Boarding B | 1 | |
| 18 | 16420010000015 | Plastic drainage pipe | 1 | |
| 19 | 16420012000012 | Chassis | 1 | |

Ceiling & floor type

| | |
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1. Function Introduction

| Function | Name | AMCF-H*/4R1 | | |
|----------------------|-----------------------------|-------------|----|----|
| | | 09 | 12 | 18 |
| Protection Function | Anti-freeze protection | ○ | ○ | ○ |
| | Sensor failure alarm | ○ | ○ | ○ |
| | Error code display function | ○ | ○ | ○ |
| Comfortable Function | Cooling | ○ | ○ | ○ |
| | Heating | ○ | ○ | ○ |
| | 3 fan speed | ○ | ○ | ○ |
| | Auto-restart (optional) | ○ | ○ | ○ |
| | Anti-cold wind | ○ | ○ | ○ |
| | Blow exhaust heat | ○ | ○ | ○ |
| | Timer | ○ | ○ | ○ |
| Opretating display | clock display | ○ | ○ | ○ |
| | operating mode display | ○ | ○ | ○ |
| | fan speed display | ○ | ○ | ○ |
| | defrosting display | ○ | ○ | ○ |
| | timing on/off display | ○ | ○ | ○ |
| | sleeping display | ○ | ○ | ○ |
| Operation mode | Auto operation | ○ | ○ | ○ |
| | Dehumidify operation | ○ | ○ | ○ |
| | Auto defrosting | ○ | ○ | ○ |
| | Ventilation function | ○ | ○ | ○ |
| Health function | Removable air filter | ○ | ○ | ○ |

2. Specification

| Model | Indoor | Unit | AMCF-H09/4R1 | AMCF-H12/4R1 | AMCF-H18/4R1 |
|----------------------|-----------------------------|-------------------|----------------------|----------------------|----------------------|
| Capacity | Cooling | Btu/h | 9560(5120-12115) | 12285(5800-12625) | 18080(8530-19107) |
| | | kW | 2.80(1.50-3.55) | 3.60(1.70-3.70) | 5.3(2.50-5.6) |
| | Heating | Btu/h | 10240(5460-13000) | 13306(6930-15080) | 19790(10340-24000) |
| | | kW | 3.00(1.60-3.81) | 3.9(2.03-4.42) | 5.8(3.03-7.03) |
| Electric Data | Power Supply | V~,Hz,Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power Input | W | 80(20-125) | 80(20-125) | 80(20-125) |
| | Heating Power Input | W | 80(20-125) | 80(20-125) | 80(20-125) |
| Fan Motor | Model | / | YSK-25W-4 | YSK-25W-4 | YSK-40W-4 |
| | Output Power | W | 25 | 25 | 40 |
| | Capacitor | uF | 1.5 | 1.5 | 2.5 |
| | Speed (Hi/Mi/Lo) | r/min | 1030/866/735 | 1030/866/735 | 1250/1100/900 |
| Indoor Coil | Number Of Row | / | 2 | 2 | 3 |
| | Tube Pitchx Row Pitch | mm | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 |
| | Fin Pitch | mm | 1.6 | 1.6 | 1.6 |
| | Fin Material | / | Hydrophilic aluminum | Hydrophilic aluminum | Hydrophilic aluminum |
| | Tube Outside Dia.& Material | mm | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved |
| | Coil L x H x W | mm | 599x246x 25.4 | 599x246x 25.4 | 599x246x 38.1 |
| | Heat Exchanging Area | m ² | 4.21 | 4.21 | 6.32 |
| Air Flow volume | | m ³ /h | 620/504/441 | 620/504/441 | 850/680/595 |
| Sound Pressure Level | | dB(A) | 39/36/30 | 39/36/30 | 43/39/36 |
| Dimension | Net Dim(W*D*H) | mm | 929×660×205 | 929×660×205 | 929×660×205 |
| | Packing Dim(W*D*H) | mm | 1010×720×290 | 995×710×280 | 995×710×280 |
| Weight | Net | kg | 24 | 24 | 25 |
| | Gross | kg | 27 | 27 | 28 |
| Refrigerant Type | | / | R410a | R410a | R410a |
| Pipe Dia | Liquid Side | mm(inch) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) |
| | Gas Side | mm(inch) | 12.7(1/2) | 12.7(1/2) | 12.7(1/2) |
| | Drainage | mm | 20 | 20 | 20 |
| Loading Qty | 20/40/40H | unit | 136/280/315 | 136/280/315 | 136/280/315 |

Note:

1.Cooling capacity test Condition:(27℃DB,19℃WB Indoor/35℃DB,24℃WB Outdoor);

Heating capacity test Condition:(20℃DB Indoor/7℃DB,6℃WB Outdoor);

connecting pipe length: 5M.

2.Datas may be changed with unit improvement. We keep the right to change the datas or specifications without prior notice, please follow the datas listed on the nameplate.

3. Capacity amendment

3.1 Running range

| | | | | |
|--------------------------|---------|----------------|-------|-------|
| Cooling capacity (Btu/h) | | 9000 | 12000 | 18000 |
| Power supply | | 220-240V~/50Hz | | |
| Voltage | | 187~253V | | |
| Ambient temperature | Cooling | -10~52℃ | | |
| | Heating | -15~24℃ | | |

3.2 Amendment coefficient of cooling capacity under different indoor/outdoor temperature(K1)

| Indoor temperature(℃) | | Outdoor temperature(DB) | | | | | |
|-----------------------|----|-------------------------|------|------|------|------|------|
| DB | WB | 25 | 30 | 35 | 40 | 45 | 50 |
| 22 | 15 | 0.97 | 0.92 | 0.87 | 0.96 | 0.77 | 0.75 |
| 24 | 17 | 1.03 | 0.98 | 0.94 | 0.89 | 0.84 | 0.80 |
| 27 | 19 | 1.10 | 1.05 | 1 | 0.95 | 0.90 | 0.86 |
| 29 | 21 | 1.16 | 1.11 | 1.06 | 1.02 | 0.96 | 0.91 |
| 32 | 23 | 1.22 | 1.17 | 1.13 | 1.08 | 1.02 | 0.98 |

Actual cooling capacity calculation:

Actual cooling capacity=amendment coefficient of cooling capacity × nominal cooling capacity

——nominal cooling capacity could be found from the performance parameters list

——amendment coefficient of cooling capacity could be found from table above.

3.3 Amendment coefficient of heating capacity under different indoor/outdoor temperature K2

| Outdoor temperature(℃) | | Indoor temperature(DB) | | |
|------------------------|-----|------------------------|------|------|
| DB | WB | 15 | 20 | 25 |
| -15 | -16 | 0.64 | 0.59 | 0.55 |
| -10 | -12 | 0.71 | 0.66 | 0.62 |
| -7 | -8 | 0.76 | 0.72 | 0.67 |
| -1 | -2 | 0.79 | 0.74 | 0.70 |
| 2 | 1 | 0.81 | 0.76 | 0.72 |
| 7 | 6 | 1.04 | 1 | 0.96 |
| 10 | 9 | 1.10 | 1.06 | 1.01 |
| 15 | 12 | 1.16 | 1.12 | 1.07 |

Actual heating capacity calculation:

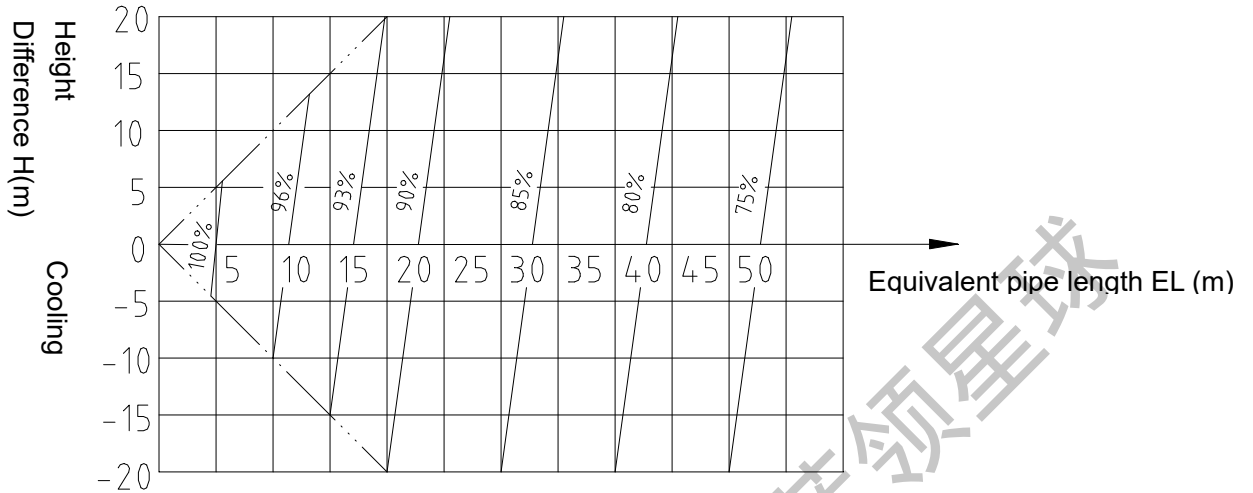
Actual heating capacity=amendment coefficient of heating capacity × nominal heating capacity

——nominal heating capacity could be found from the performance parameters list

——amendment coefficient of heating capacity could be found from table above.

3.4 Amendment coefficients of heating and cooling capacity under different height dropK3

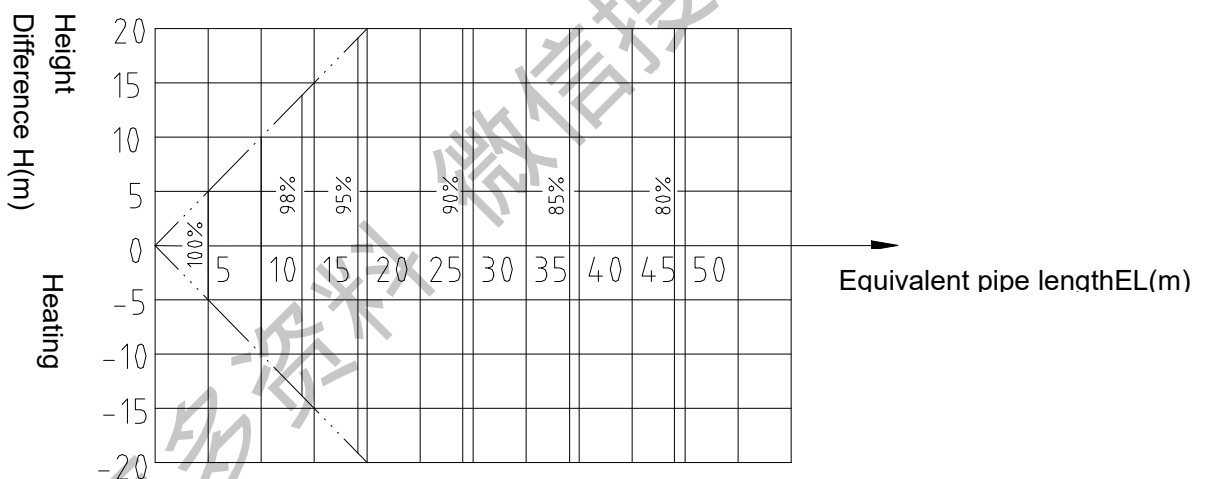
Different Cooling Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

Different Heating Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

3.5 Correction capability

Cooling capacity = nominal cooling capacity xK1xK3

Heating capacity = nominal heating capacity xK2xK3

3.6 Equivalent Pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Bend and Oil Loop Conversion tablet

| Type Pipe Dia.(mm) | Bend | Oil Loop |
|-----------------------|------|----------|
| 6.35 | 0.10 | 0.7 |
| 9.52 | 0.18 | 1.3 |
| 12.70 | 0.20 | 1.5 |
| 15.88 | 0.25 | 2.0 |
| 19.05 | 0.35 | 2.4 |
| 22.02 | 0.40 | 3.0 |

Equivalent Pipe length L = Actual Pipe length L + Bend Qty × Equivalent pipe bend length + Oil Loop Qty × Equivalent Oil Loop length

Sample:

AMCF-H09/4R1 Actual Pipe length is 25 meters, Gas pipe diameter is 9.52mm. If there's 5 bends and 2 oil loops during the installation, then the equivalent pipe length should be:

$$L = 25 + 0.18 \times 5 + 1.3 \times 2 = 28.5(\text{m})$$

◇ Specification of Connection Pipe for Indoor Unit and Outdoor Unit

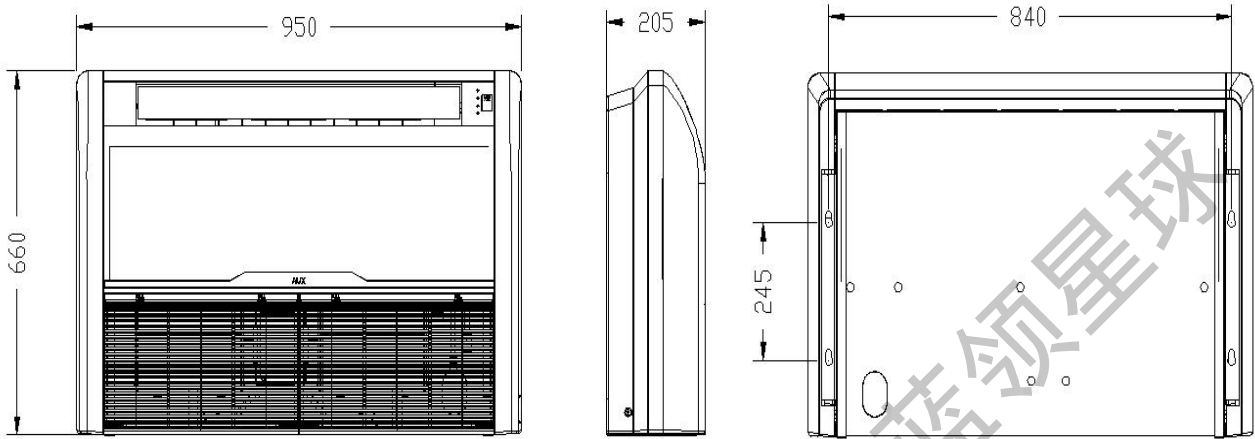
| Cooling Capacity(Btu/h) | | 9000 | 12000 | 18000 |
|--|-------------|-------|-------|-------|
| Connection Pipe (mm) | Liquid Pipe | Φ6.35 | | |
| | Gas Pipe | Φ12.7 | | |
| Max. Length(Each) | | 15 | | |
| Max. Height (m) | | 10 | | |
| Max. Bend Qty | | 5 | | |
| Extra R410a per meter when the pipe length is more than 5 meter (kg) | | 0.022 | | |

Caution:

1. The standard Pipe length is 5m, if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above Charging Data
2. The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;
3. If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 5m, an oil trap should be installed in the gas pipe for every 10 meters.

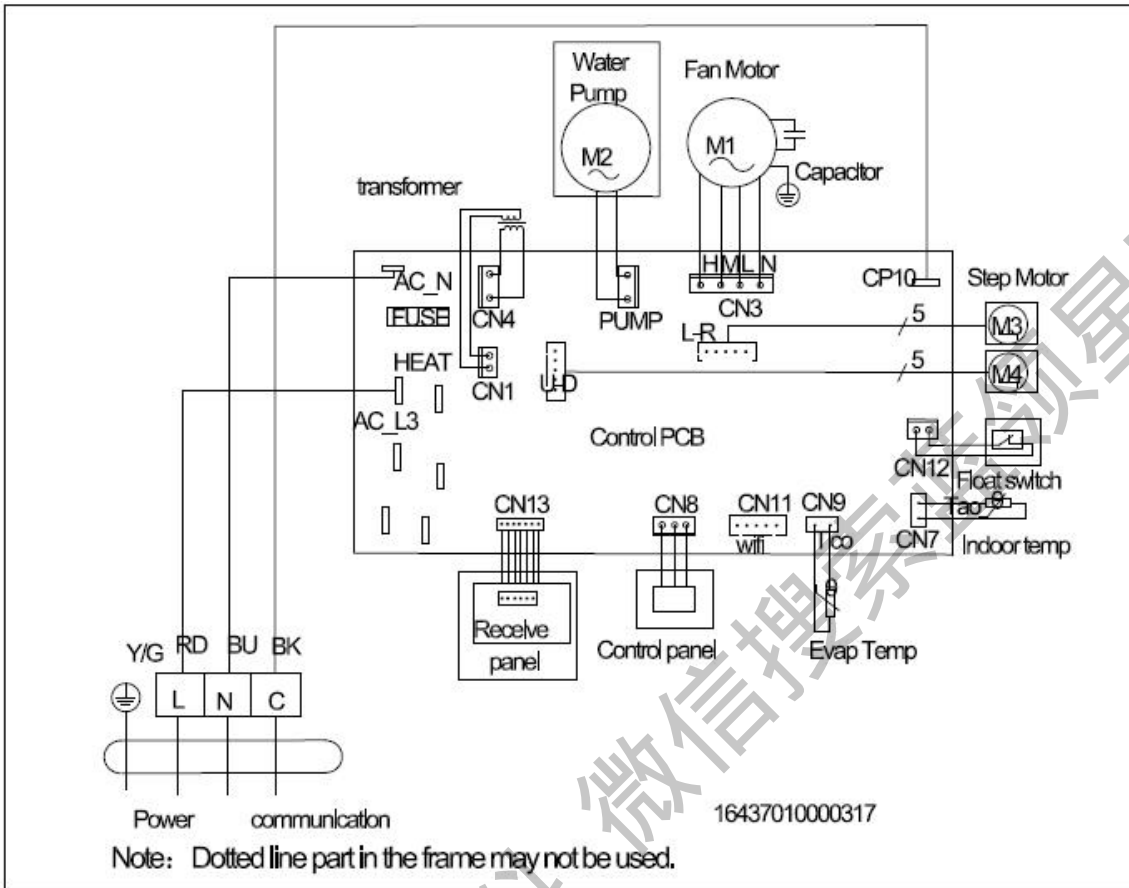
4. Dimension

AMCF-H09/4R1, AMCF-H12/4R1, AMCF-H18/4R1



5. Electrical Diagram

AMCF-H09/4R1, AMCF-H12/4R1, AMCF-H18/4R1



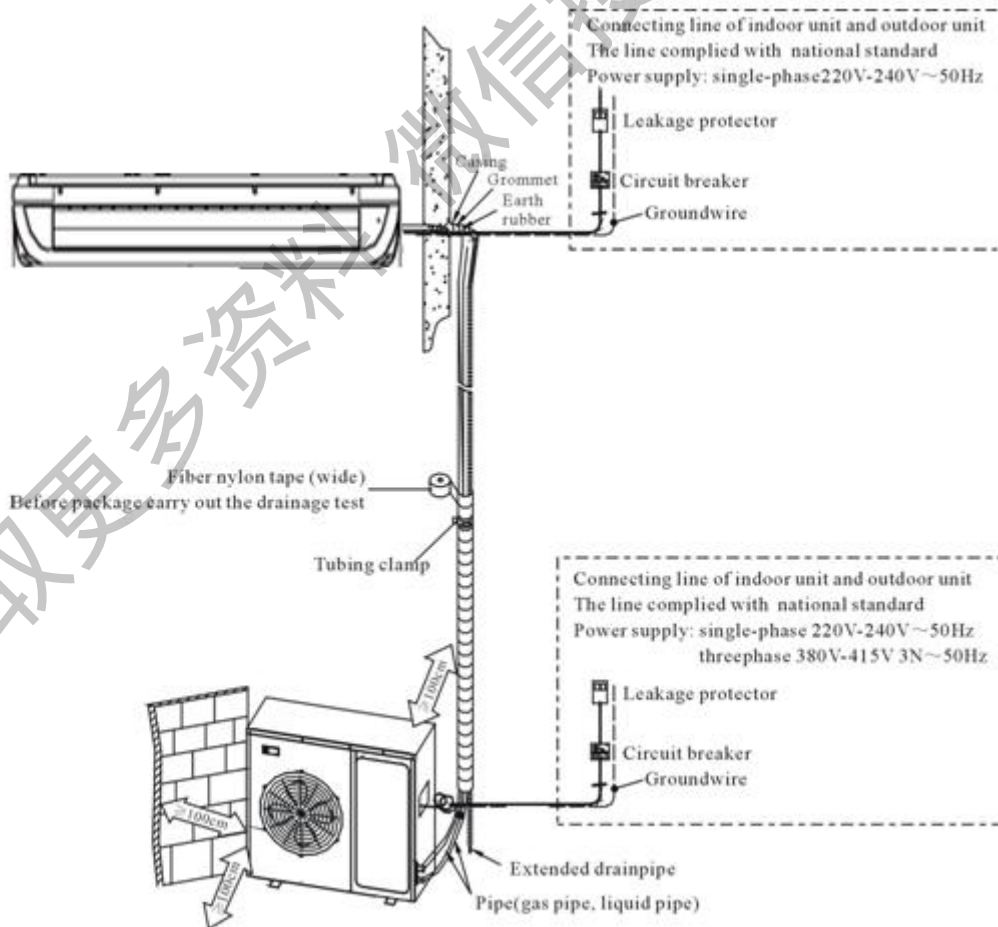
6. Installation

6.1 Preparation and equipments before installation

6.1.1 Please buy following spare parts from your local market before installation

| | |
|----|---|
| 1 | Hung bolts M12, 4 pcs |
| 2 | Drainage pipe PVC |
| 3 | Copper pipe |
| 4 | Adhesive belt (big size) 5 pcs, (small size) 5 pcs |
| 5 | Heat insulation material used to connect copper pipe (PE foam material, its thickness is more than 8mm) |
| 6 | Power cable, electrical wire between indoor and outdoor unit (Must be in accordance with the wire diameter in the wiring diagram) |
| 7 | Acetylene cylinders, oxygen cylinders (when longer pipe used it should be welded) |
| 8 | One set pipe cut machine. (cut copper pipe) |
| 9 | Refrigerant cans, electronic balance (when longer pipe used additional gas should be charged) |
| 10 | Pressure gauges, pipe clamp, welding torch, 2B silver electrode |
| 11 | Wrench 2 pcs, one of them is with adjustable torque wrench(42N.m,65N.m,100N.mm) |
| 12 | Nitrogen cylinder (in order to prevent oxidation when welding, using Nitrogen to replace the air) |

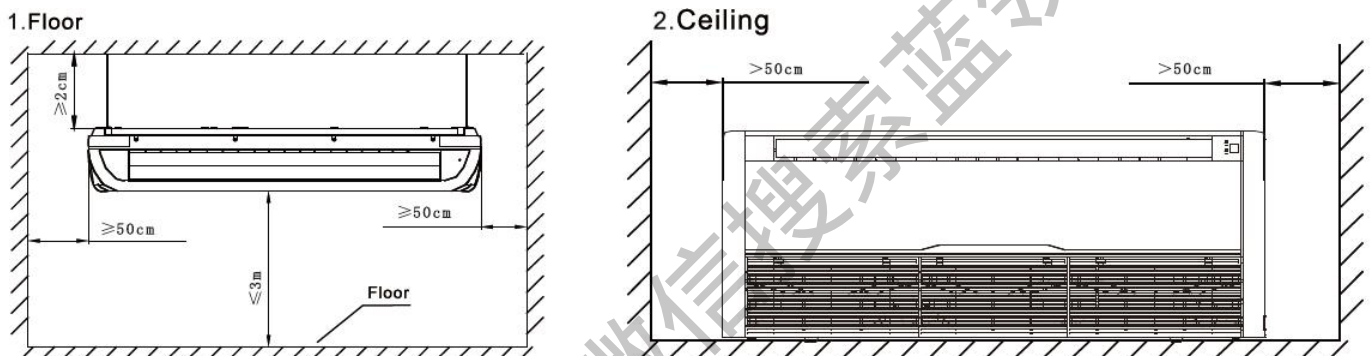
6.2 Installation drawing



6.3 Installation precaution

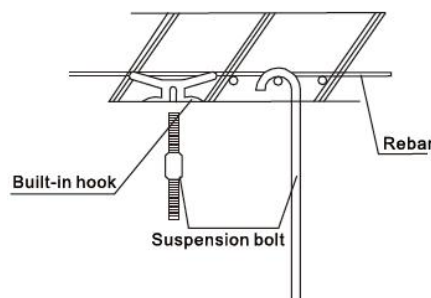
- ◇ Hanging location should be able to support the unit's weight, there should be no increase in noise and vibration. If the hanging location needs reinforcement, it should be reinforced before installation;
- ◇ Choose the space above the ceiling that can put the indoor unit inside;
- ◇ The location should be easy for drainage;
- ◇ The unit should not be installed in the heat source, steam or oil mist source (such as machine room, kitchen, laundry room, mechanical workshop, etc.)
- ◇ Choose the location at least 1 meter away from TV and radio, in order to avoid interference to them
- ◇ There should be certain distance between indoor unit and obstacles for maintenance;
- ◇ In case of leakage of refrigerant, units should immediately stop running, and contact with maintenance personnel in time. There must be no fire at the site, because the refrigerant will turn to harmful gas when get to the fire.

6.4 The distance between indoor unit and obstacle

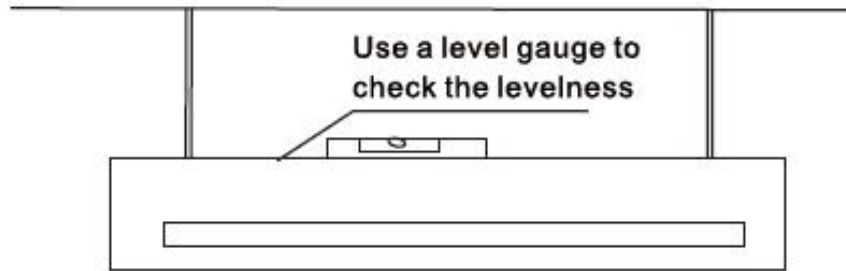


6.5 Indoor unit suspension

- ◇ Select the suspension foundation
- ◇ The suspension foundation is a structure of either wooden frame or reinforced concrete. It must be firm and reliable to bear at least 4 times weight of itself and capable of bearing vibration for long periods;
Fixing of suspension foundation
- ◇ Fix the suspension bolts either as shown in the picture or by a steel or wooden bracket;



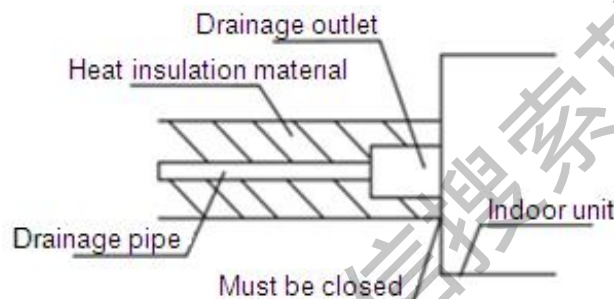
- ◇ Adjust the relative position of the suspension hook on the suspension bolt so that the unit can be in level position in all directions. Check with a level gauge after installation to ensure that the indoor unit is horizontal, otherwise it will cause water leakage, air leakage etc.



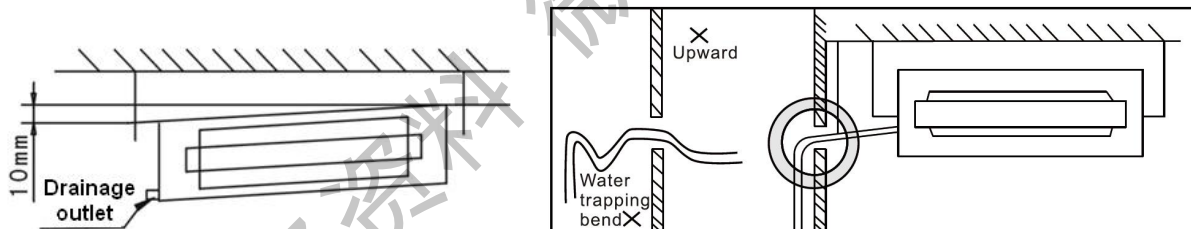
- ◇ Tighten the bolt and ensure that four hooks are in close contact with the nuts and washers, to fix the indoor unit under the ceiling.
- ◇ After the unit is installed ensure it is secure and does not shake or sway.

6.6 Drainage pipe installation

The drainage pipe should be properly insulated to prevent the generation of condensation. Heat insulation material: the thickness of rubber insulation pipe should be more than 8mm



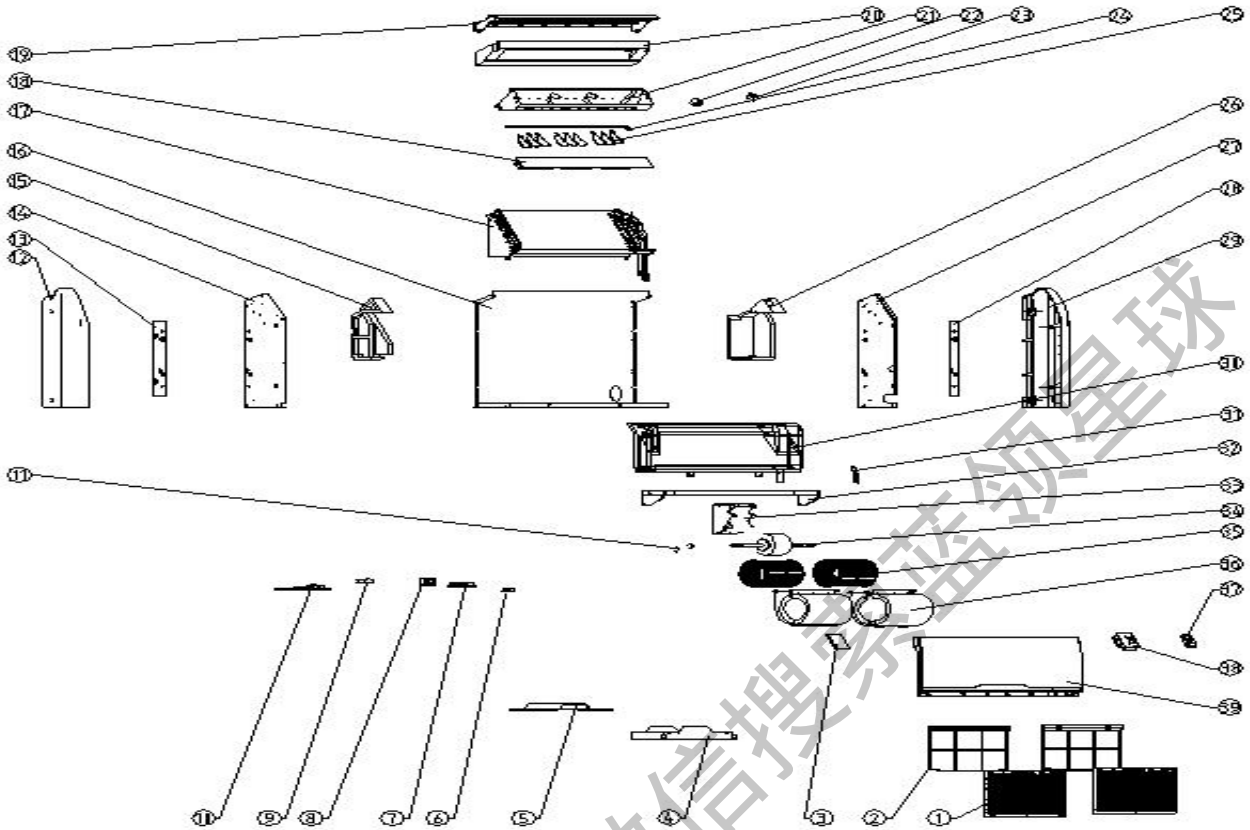
- ◇ Drainage pipe must have a downward gradient (1 / 50 1 / 100) to avoid water backflow or leakage etc.



- ◇ When finish installation please carry out the drainage test to ensure that the water flow through the pipeline fluently, and carefully observe the junction to ensure that there is no water leakage at the junction. If the unit is installed in the newly built house, strongly recommend that this test taken before the CFiling installation. Even it is the heating only unit, this test is unavoidable.

7. Explode view

AMCF-H09/4R1,AMCF-H12/4R1,AMCF-H18/4R1



| No. | Material Code | Part Name | Qty | Remark |
|------|----------------|---|-----|-----------|
| 1 | 16420012000002 | Air-inlet filter | 2 | |
| 2 | 16420010000002 | Air-inlet grill(white) | 2 | |
| 3 | 16420015000002 | Left side adornment plank | 1 | |
| 4 | 16421038000207 | The electricity controls a box | 1 | |
| 5 | 16421038000208 | The electricity controls a box of cover | 1 | |
| 6 | 11220544000008 | Compress tightly electric wire seat | 1 | |
| 7 | 16427001000064 | Terminal board | 1 | |
| 8 | 16422005000033 | Transformer | 1 | |
| 9 | 11330010000088 | Capacitor | 1 | |
| 10 | 11222542000029 | PCB board | 1 | |
| 11 | 16430001000196 | Motor | 1 | YSK-40W-4 |
| 12 | 16420014000007 | The left side covers | 1 | |
| 13 | 16421001000029 | Left suspend plate | 1 | |
| 14 | 16321006000005 | Bracket board welding assembly of left-hand | 1 | |
| 15 | 16428001000034 | Left foam | 1 | |
| 16 | 16421018000004 | Chassis welding assembly | 1 | |
| 17 | 16324006000014 | Evaporator assembly | 1 | |
| 17.1 | 16325006000018 | Evaporator tube kit | 1 | |
| 17.2 | 16325006000017 | Evaporator outlet assembly | 1 | |
| 17.3 | 16325006000016 | Evaporator inlet pipe assembly | 1 | |

| | | | | |
|------|----------------|--|---|--|
| 18 | 16420005000005 | Sway a breeze leaf | 1 | |
| 19 | 16420014000016 | The crest covers plank | 1 | |
| 20 | 16428001000023 | Topmost foam | 1 | |
| 21 | 16320006000007 | Air guide louver assembly | 1 | |
| 22 | 16430001000022 | Step motor | 1 | |
| 23 | 16430001000018 | Step motor | 1 | |
| 24 | 16420008000003 | Connect a pole | 1 | |
| 25 | 16420007000008 | Perpendicular blade | 9 | |
| 26 | 16428001000035 | Right foam | 1 | |
| 27 | 16321006000006 | Bracket board welding assembly of right-hand | 1 | |
| 28 | 16421001000030 | Right suspend plate | 1 | |
| 29 | 16420014000008 | The Right side covers | 1 | |
| 30 | 16321006000008 | Draining tray | 1 | |
| 30.1 | 16421002000191 | The collection plate fixed plate | 1 | |
| 31 | 16432019000021 | Drain pipe | 1 | |
| 32 | 16421002000190 | Volute fixing board | 1 | |
| 35 | 16321006000024 | Centrifugal fan assembly | 2 | |
| 36 | 16432019000009 | Top Blower | 2 | |
| | 16432019000007 | Btm Blower | 2 | |
| 37 | 11222023000333 | Display board | 1 | |
| 38 | 16420017000002 | Display board cover | 1 | |
| 39 | 16420013000019 | Front panel | 1 | |

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Low ESP Ducted Type

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1. Function Introduction

| Function | Name | AMSD-H*/4R1 | | | |
|----------------------|------------------------------|-------------|----|----|----|
| | | 07 | 09 | 12 | 18 |
| Protection Function | Anti-freeze protection | ○ | ○ | ○ | ○ |
| | Sensor failure alarm | ○ | ○ | ○ | ○ |
| | Error code display function | ○ | ○ | ○ | ○ |
| Comfortable Function | Cooling | ○ | ○ | ○ | ○ |
| | Heating | ○ | ○ | ○ | ○ |
| | 3 fan speed | ○ | ○ | ○ | ○ |
| | static pressure adjustable | ○ | ○ | ○ | ○ |
| | Auto-restart (optional) | ○ | ○ | ○ | ○ |
| | Anti-cold wind | ○ | ○ | ○ | ○ |
| | Blow exhaust heat | ○ | ○ | ○ | ○ |
| | Timer | ○ | ○ | ○ | ○ |
| Opretating display | clock display | ○ | ○ | ○ | ○ |
| | operating mode display | ○ | ○ | ○ | ○ |
| | fan speed display | ○ | ○ | ○ | ○ |
| | defrosting display | ○ | ○ | ○ | ○ |
| | timing on/off display | ○ | ○ | ○ | ○ |
| | sleeping display | ○ | ○ | ○ | ○ |
| Operation mode | Auto operation | ○ | ○ | ○ | ○ |
| | Dehumidify operation | ○ | ○ | ○ | ○ |
| | Auto defrosting | ○ | ○ | ○ | ○ |
| | Ventilation function | ○ | ○ | ○ | ○ |
| Health function | Removable air filter | ○ | ○ | ○ | ○ |
| | fresh air function preserved | ○ | ○ | ○ | ○ |

2. Specification

| Model | Indoor | Unit | AMSD-H07/4R1 | AMSD-H09/4R1 | AMSD-H12/4R1 | AMSD-H18/4R1 |
|----------------------------|---------------------|-------------------|----------------------|----------------------|----------------------|----------------------|
| Capacity | Cooling | Btu/h | 7506(3855-9220) | 8872(5120-12115) | 12280(5835-13135) | 17400(8530-19790) |
| | | kW | 2.20(1.13-2.70) | 2.60(1.50-3.55) | 3.60(1.71-3.85) | 5.10(2.50-5.80) |
| | Heating | Btu/h | 8530(4575-10820) | 9895(5800-12450) | 13650(6480-13375) | 19790(9690-21835) |
| | | kW | 2.50(1.34-3.17) | 2.9(1.70-3.65) | 4.00(1.90-3.92) | 5.8(2.84-6.40) |
| Electric Data | Power Supply | V~,Hz,Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power Input | W | 45 | 45 | 75 | 137 |
| | Heating Power Input | W | 45 | 45 | 75 | 137 |
| Fan Motor | Model | / | FP20A | FP20A | FP25A | FP40A |
| | Output Power | W | 20 | 20 | 25 | 40 |
| | Capacitor | uF | 1.5 | 1.5 | 2 | 3 |
| | Speed (Hi/Mi/Lo) | r/min | 1060/790/610/510 | 1060/790/610/510 | 1060/890/800/700 | 1160/1070/940/800 |
| Indoor Coil | Number Of Row | / | 2 | 2 | 2 | 2 |
| | Tube x Row Pitch | mm | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 |
| | Fin Pitch | mm | 1.4 | 1.4 | 1.4 | 1.4 |
| | Fin Material | / | Hydrophilic aluminum | Hydrophilic aluminum | Hydrophilic aluminum | Hydrophilic aluminum |
| | Tube Dia.& Material | mm | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved |
| | Coil L x H x W | mm | 640x205x 25.4 | 640x205x 25.4 | 640x205x 25.4 | 960x205x 25.4 |
| | Heat Exchange Area | m ² | 4.24 | 4.24 | 4.24 | 6.36 |
| Air Volume | | m ³ /h | 420/336/294 | 420/336/294 | 580/464/406 | 860/688/602 |
| Sound Pressure Noise Level | | dB(A) | 30/26/23 | 30/26/23 | 32/28/25 | 38/35/32 |
| Dimension | Net Dim (W*D*H) | mm | 840×460×185 | 840×460×185 | 840×460×185 | 1160×460×185 |
| | Packing Dim(W*D*H) | mm | 1030×545×250 | 1030×545×250 | 1030×545×250 | 1350×545×250 |
| Weight | Net | kg | 16.5 | 16.5 | 17.5 | 21 |
| | Gross | kg | 20 | 20 | 21 | 26 |
| Refrigerant Type | | / | R410a | R410a | R410a | R410a |
| Pipe Dia | Liquid Side | mm(inch) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) |
| | Gas Side | mm(inch) | 9.52(3/8) | 9.52(3/8) | 12.7(1/2) | 12.7(1/2) |
| | Drainage | mm | 16.5 | 16.5 | 16.5 | 16.5 |
| Loading Qty | 20/40/40H | unit | 198/396/440 | 198/396/440 | 198/396/440 | 144/297/330 |

Note:

- Cooling capacity test Condition:(27℃DB,19℃WB Indoor/35℃DB,24℃WB Outdoor);
Heating capacity test Condition:(20℃DB Indoor/7℃DB,6℃WB Outdoor);
connecting pipe length: 5M.
- Datas may be changed without improvement. We keep the right to change the datas or specifications without prior notice, please follow the datas listed on the nameplate.

3. Capacity amendment

3.1 Running range

| | | | | | |
|--------------------------|---------|----------------|------|-------|-------|
| Cooling capacity (Btu/h) | | 7000 | 9000 | 12000 | 18000 |
| Power supply | | 220-240V~/50Hz | | | |
| Voltage | | 187~253V | | | |
| Ambient temperature | Cooling | -10~52℃ | | | |
| | Heating | -15~24℃ | | | |

3.2 Amendment coefficient of cooling capacity under different indoor/outdoor temperature K1

| Indoor temperature(℃) | | Outdoor temperature(DB) | | | | | |
|-----------------------|----|-------------------------|------|------|------|------|------|
| DB | WB | 25 | 30 | 35 | 40 | 45 | 50 |
| 22 | 15 | 0.97 | 0.92 | 0.87 | 0.96 | 0.77 | 0.75 |
| 24 | 17 | 1.03 | 0.98 | 0.94 | 0.89 | 0.84 | 0.80 |
| 27 | 19 | 1.10 | 1.05 | 1 | 0.95 | 0.90 | 0.86 |
| 29 | 21 | 1.16 | 1.11 | 1.06 | 1.02 | 0.96 | 0.91 |
| 32 | 23 | 1.22 | 1.17 | 1.13 | 1.08 | 1.02 | 0.98 |

Actual cooling capacity calculation:

Actual cooling capacity=amendment coefficient of cooling capacity × nominal cooling capacity

——nominal cooling capacity could be found from the performance parameters list

——amendment coefficient of cooling capacity could be found from table above.

3.3 Amendment coefficient of heating capacity under different indoor/outdoor temperature K2

| Outdoor temperature(℃) | | Indoor temperature(DB) | | |
|------------------------|-----|------------------------|------|------|
| DB | WB | 15 | 20 | 25 |
| -15 | -16 | 0.64 | 0.59 | 0.55 |
| -10 | -12 | 0.71 | 0.66 | 0.62 |
| -7 | -8 | 0.76 | 0.72 | 0.67 |
| -1 | -2 | 0.79 | 0.74 | 0.70 |
| 2 | 1 | 0.81 | 0.76 | 0.72 |
| 7 | 6 | 1.04 | 1 | 0.96 |
| 10 | 9 | 1.10 | 1.06 | 1.01 |
| 15 | 12 | 1.16 | 1.12 | 1.07 |

Actual heating capacity calculation:

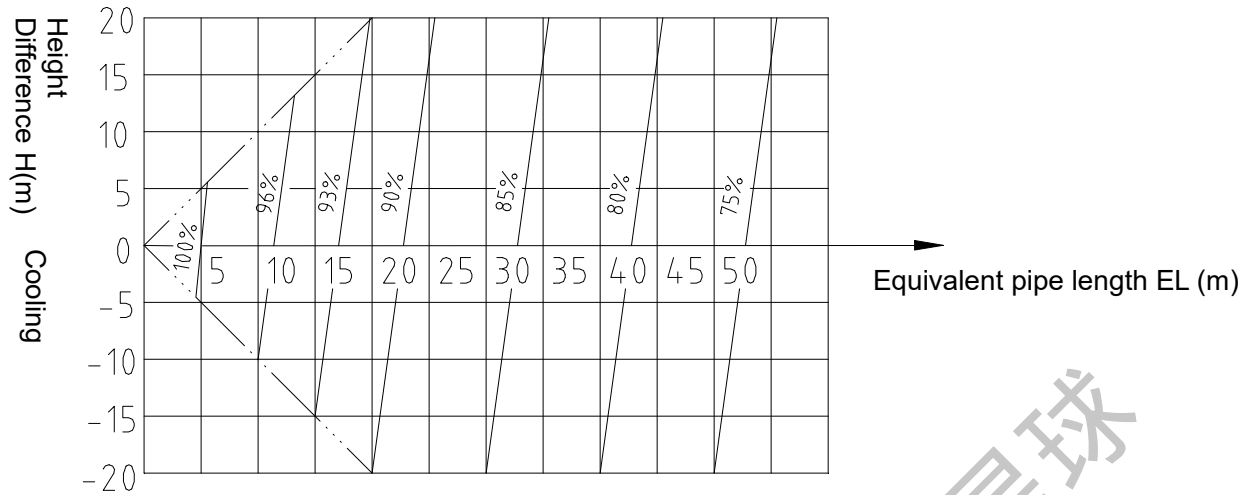
Actual heating capacity=amendment coefficient of heating capacity × nominal heating capacity

——nominal heating capacity could be found from the performance parameters list

——amendment coefficient of heating capacity could be found from table above.

3.4 Amendment coefficients of heating and cooling capacity under different height drop K3

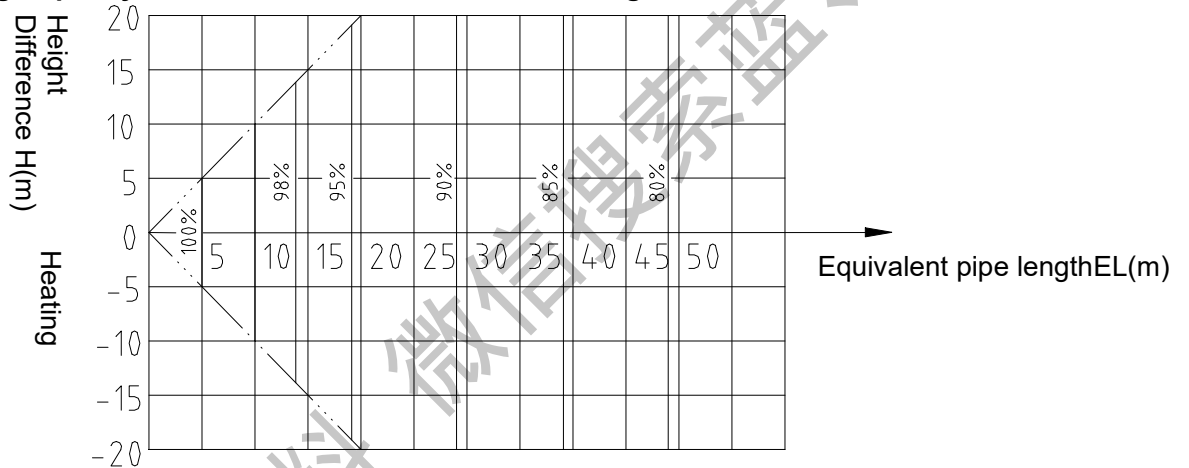
Different Cooling Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

Different Heating Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

3.5 Correction capability

Cooling capacity = nominal cooling capacity xK1xK3

Heating capacity = nominal heating capacity xK2xK3

3.6 Equivalent Pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

1. Bend and Oil Loop Conversion tablet

| Pipe Dia.(mm) \ Type | Bend | Oil Loop |
|----------------------|------|----------|
| 6.35 | 0.10 | 0.7 |
| 9.52 | 0.18 | 1.3 |
| 12.70 | 0.20 | 1.5 |
| 15.88 | 0.25 | 2.0 |
| 19.05 | 0.35 | 2.4 |
| 22.02 | 0.40 | 3.0 |

Equivalent Pipe length $L = \text{Actual Pipe length} + \text{Bend Qty} \times \text{Equivalent pipe bend length} + \text{Oil Loop Qty} \times \text{Equivalent Oil Loop length}$

Sample:

AMSD-H09/4R1 Actual Pipe length is 25 meters, Gas pipe diameter is 9.52mm. If there's 5 bends and 2 oil loops during the installation, then the equivalent pipe length should be:

$$L = 25 + 0.18 \times 5 + 1.3 \times 2 = 28.5(\text{m})$$

◇ Specification of Connection Pipe for Indoor Unit and Outdoor Unit

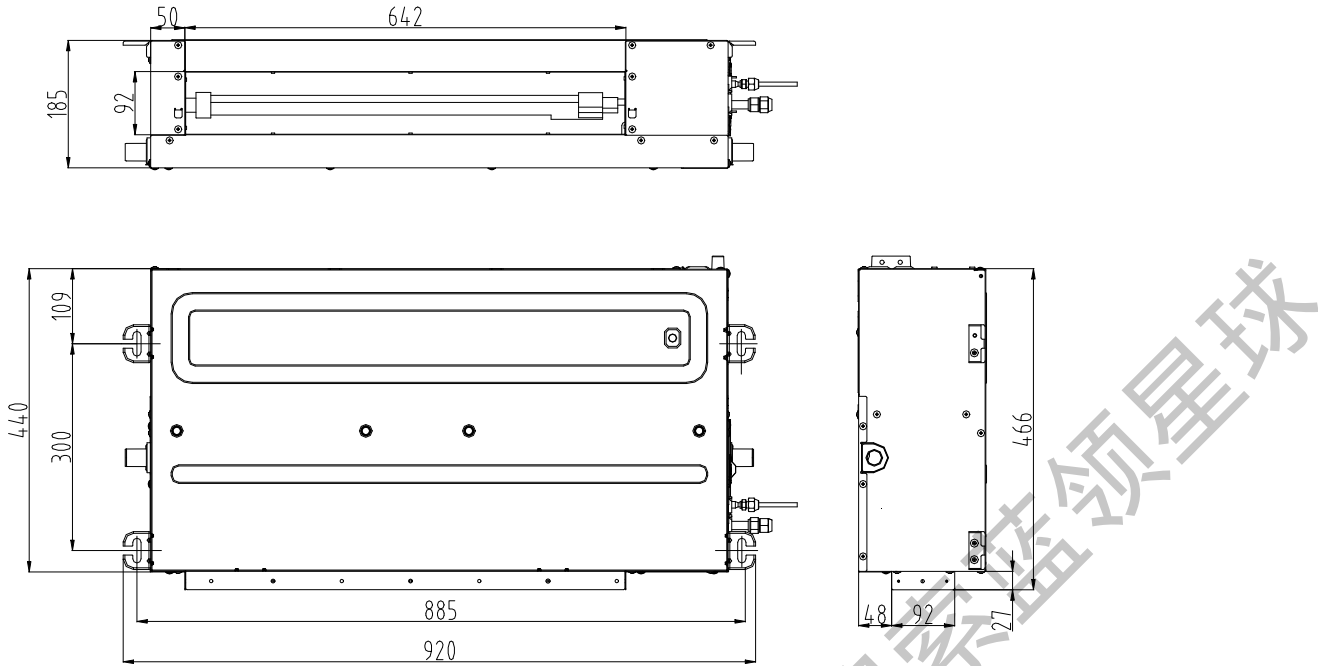
| Cooling Capacity(Btu/h) | | 7000 | 9000 | 12000 | 18000 |
|--|-------------|-------|------|-------|-------|
| Connection Pipe (mm) | Liquid Pipe | Φ6.35 | | | |
| | Gas Pipe | Φ9.52 | | Φ12.7 | |
| Max. Length(Each) | | 15 | | | |
| Max. Height (m) | | 10 | | | |
| Max. Bend Qty | | 5 | | | |
| Extra R410a per meter when the pipe length is more than 5 meter (kg) | | 0.022 | | | |

Caution:

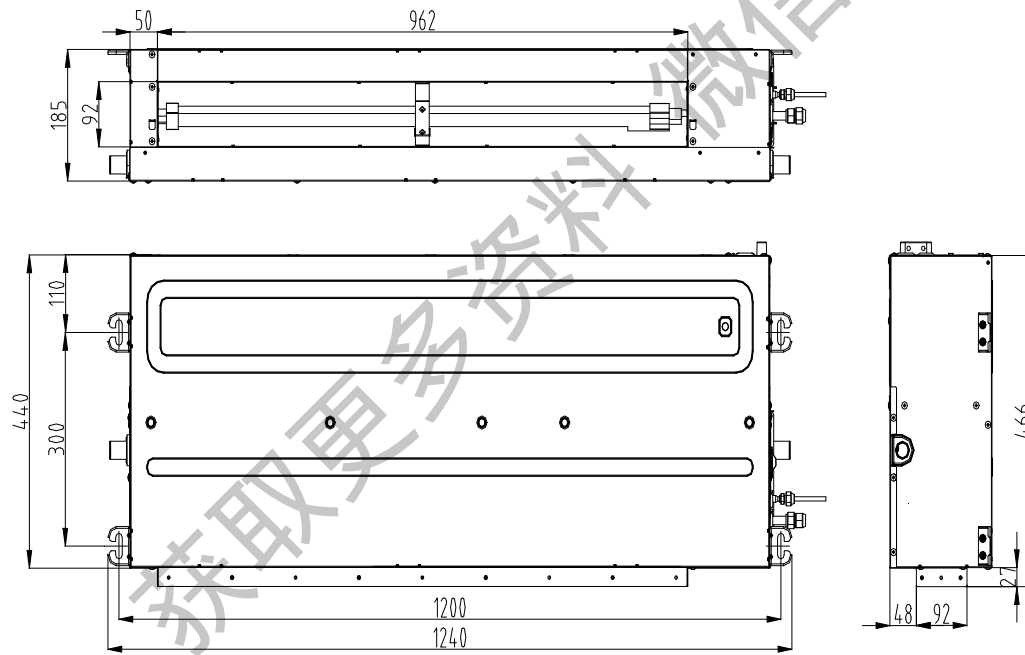
1. The standard Pipe length is 5m, if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above Charging Data
2. The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;
3. If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 5m, an oil trap should be installed in the gas pipe for every 10 meters.

4. Dimension

AMSD-H07/4R1, AMSD-H09/4R1, AMSD-H12/4R1

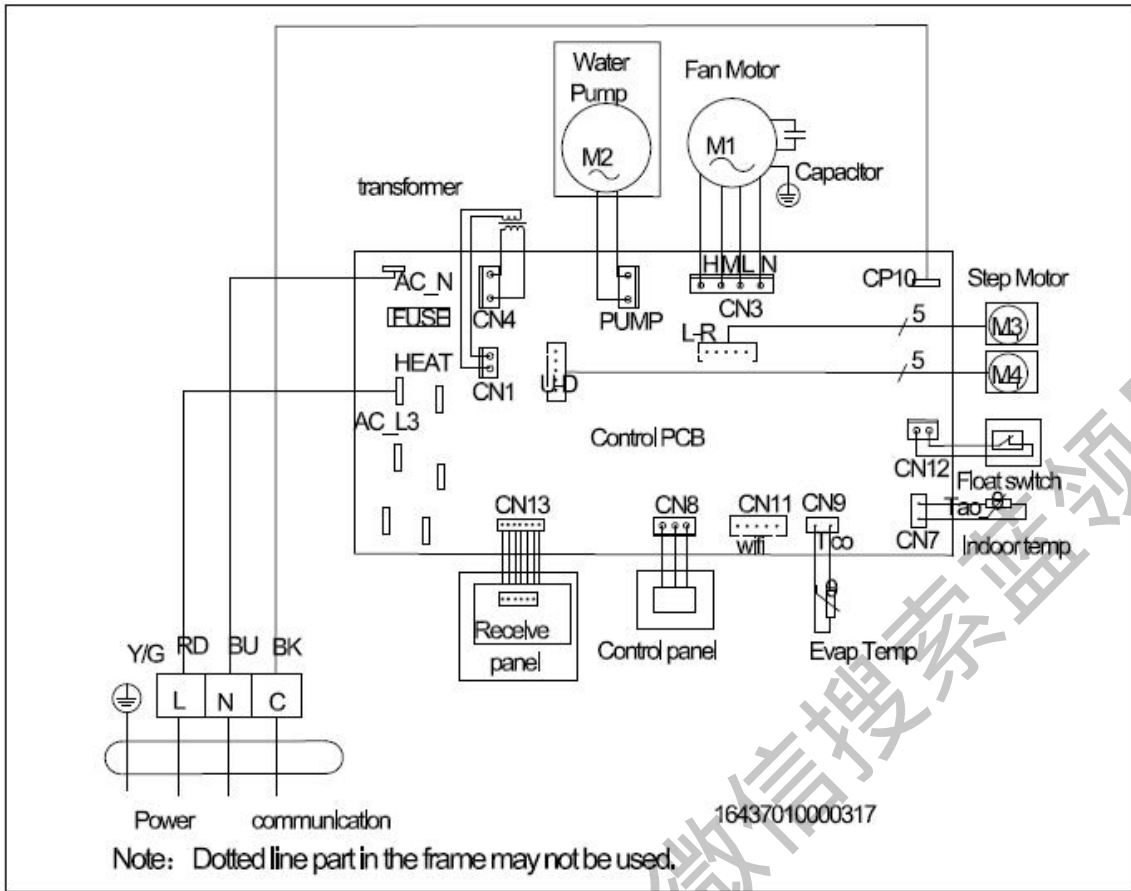


AMSD-H18/4R1



5. Electrical wiring and connection

AMSD-H07/4R1, AMSD-H094R1, AMSD-H12/4R1, AMSD-H18/4R1



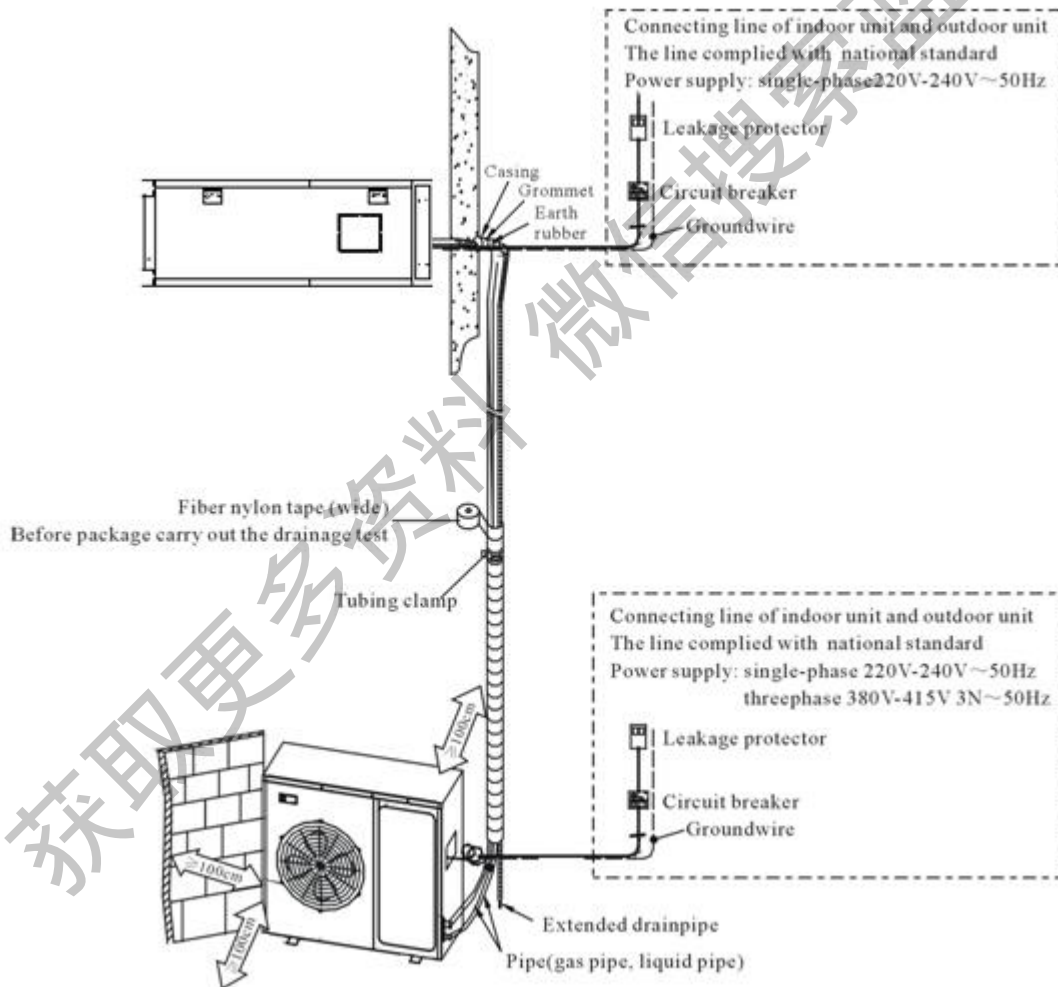
6. Installation

6.1 Preparation and equipments before installation

6.1.1 Please buy following spare parts from your local market before installation

| | |
|----|---|
| 1 | Hung bolts M12, 4 pcs |
| 2 | Drainage pipe PVC |
| 3 | Copper pipe |
| 4 | Adhesive belt (big size) 5 pcs, (small size) 5 pcs |
| 5 | Heat insulation material used to connect copper pipe (PE foam material, its thickness is more than 8mm) |
| 6 | Power cable, electrical wire between indoor and outdoor unit (Must be in accordance with the wire diameter in the wiring diagram) |
| 7 | Acetylene cylinders, oxygen cylinders (when longer pipe used it should be welded) |
| 8 | One set pipe cut machine. (cut copper pipe) |
| 9 | Refrigerant cans, electronic balance (when longer pipe used additional gas should be charged) |
| 10 | Pressure gauges, pipe clamp, welding torch, 2B silver electrode |
| 11 | Wrench 2 pcs, one of them is with adjustable torque wrench(42N.m,65N.m,100N.mm) |
| 12 | Nitrogen cylinder (in order to prevent oxidation when welding, using Nitrogen to replace the air) |

6.2 Installation diagram

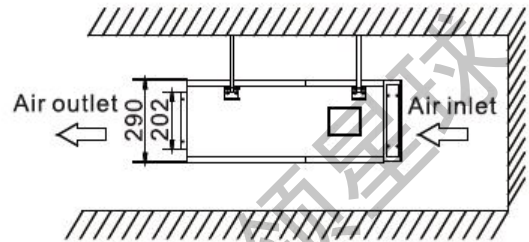
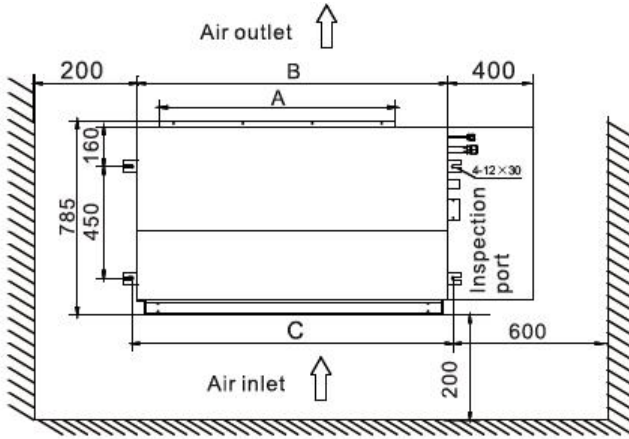


6.3 Installation precaution

- ◇ Hanging location should be able to support the unit's weight, there should be no increase in noise and vibration. If the hanging location needs reinforcement, it should be reinforced before installation;
- ◇ Choose the space above the ceiling that can put the indoor unit inside;
- ◇ The location should be easy for drainage;

- ◇ The unit should not be installed in the heat source, steam or oil mist source (such as machine room, kitchen, laundry room, mechanical workshop, etc.)
 - ◇ Choose the location at least 1 meter away from TV and radio, in order to avoid interference to them
 - ◇ There should be certain distance between indoor unit and obstacles for maintenance;
- In case of leakage of refrigerant, units should immediately stop running, and contact with maintenance personnel in time. There must be no fire at the site, because the refrigerant will turn to harmful gas when get to the fire.

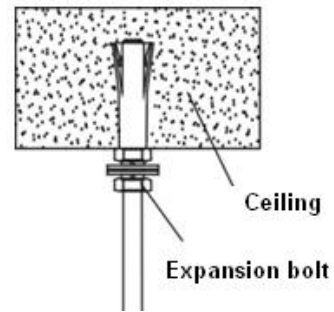
6.4 The distance between indoor unit and obstacle



| Type | A | B | C |
|----------|-----|------|------|
| 7000BTU | | | |
| 9000BTU | 642 | 840 | 880 |
| 12000BTU | | | |
| 18000BTU | 962 | 1160 | 1200 |

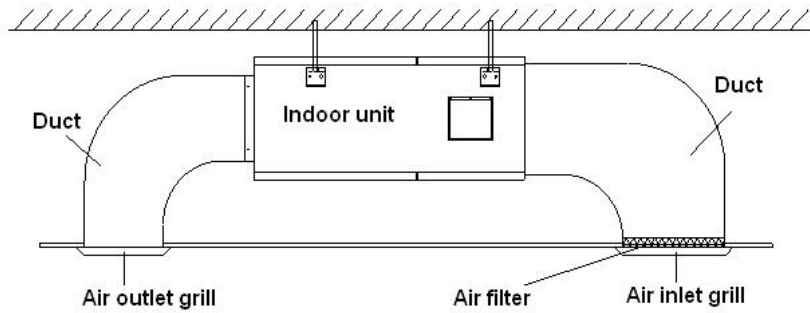
6.5 Indoor unit suspension

- ◇ Select the suspension foundation
The suspension foundation is a structure of either wooden frame or reinforced concrete. It must be firm and reliable to bear at least 4 times weight of itself and capable of bearing vibration for long periods;
- ◇ Fixing of suspension foundation
Fix the suspension bolts either as shown in the picture or by a steel or wooden bracket;
- ◇ Adjust the relative positions of the suspension hooks to ensure the indoor unit is level in all directions. Use a spirit level to ensure this, otherwise water leakage, air leakage etc. will be resulted;
- ◇ Tighten the nuts and ensure that the hooks are tightly connected to the nuts and shims, and there is no phenomenon of virtual hanging;
- ◇ After the unit is installed ensure it is secure and does not shake or sway.



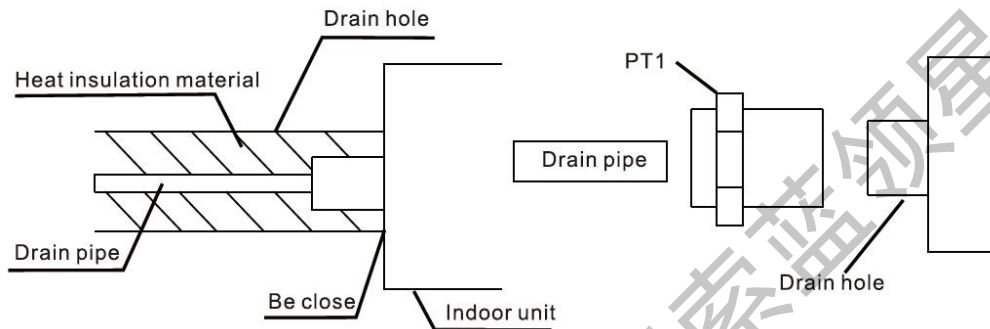
6.6 Duct pipeline installation

- ◇ Using canvas to connect between indoor unit and duct pipeline, in order to save unnecessary vibration, as to the detail connection method please refer to the following picture.



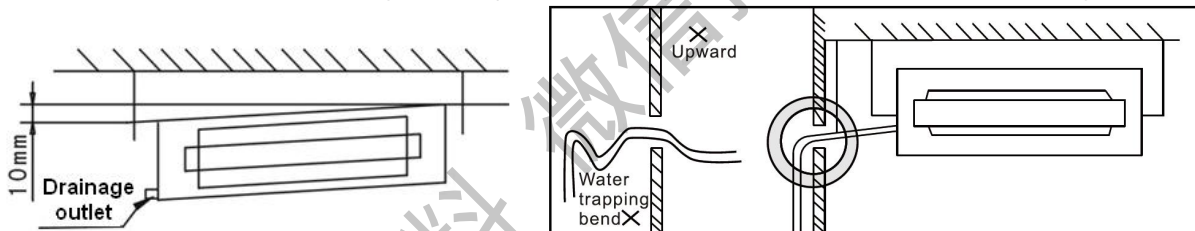
6.7 Drainage pipe

◇ Drainage pipes must be wrapped with heat insulation materials, otherwise it will cause frost or droplets, see picture as follows:



Heat insulation material: rubber insulation pipe with the thickness of more than 8mm

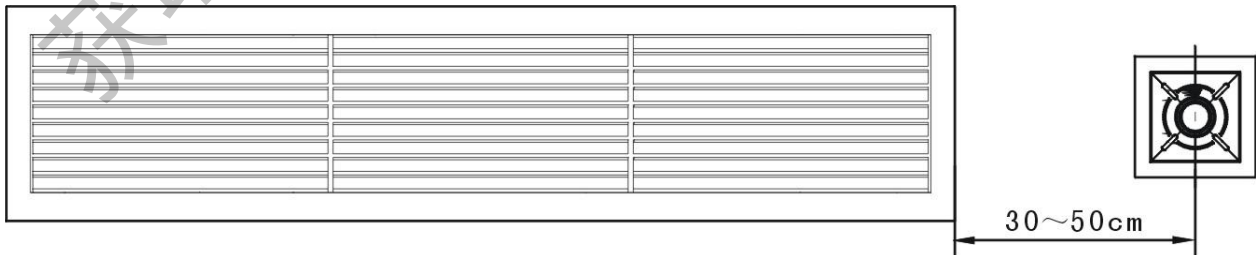
◇ Drainage pipe must have a downward gradient (1 / 50 1 / 100) to avoid water backflow or leakage etc.



◇ When finish installation please carry out the drainage test to ensure that the water flow through the pipeline fluently, and carefully observe the junction to ensure that there is no water leakage at the junction. If the unit is installed in the newly built house, strongly recommend that this test taken before the CFiling installation. Even it is the heating only unit, this test is unavoidable.

6.8 Remote controller receiver

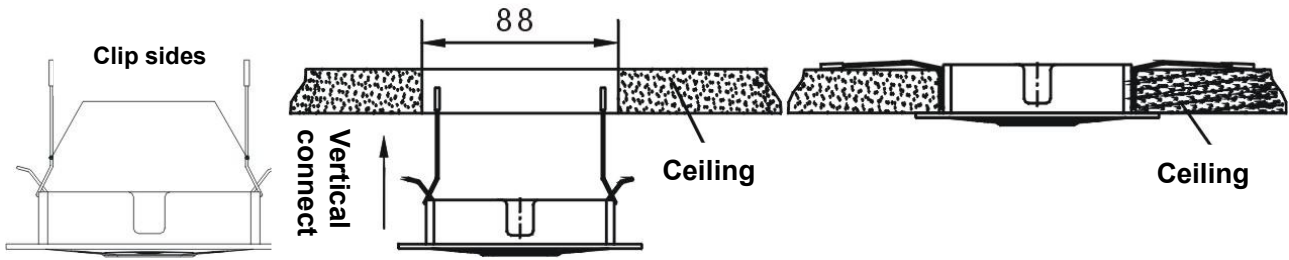
◇ Installation site: recommend that the receiver is mounted with the distance of 30~50 cm to the indoor unit air outlet(on your choice as well), while must ensure that the receiver can get the signal that the remote controller sends, please refer to the following installation picture:



◇ Mounting hole set up: please use certain instrument to dig a square hole with 88*88mm on the ceiling

◇ Remote controller receiver installation.

Hold the two sides (with clip sides) of the receiver, set the spring clip in the vertical way then put it into the mounting hole, if the two sides of the receiver is in the same level with the ceiling the installation is finished.

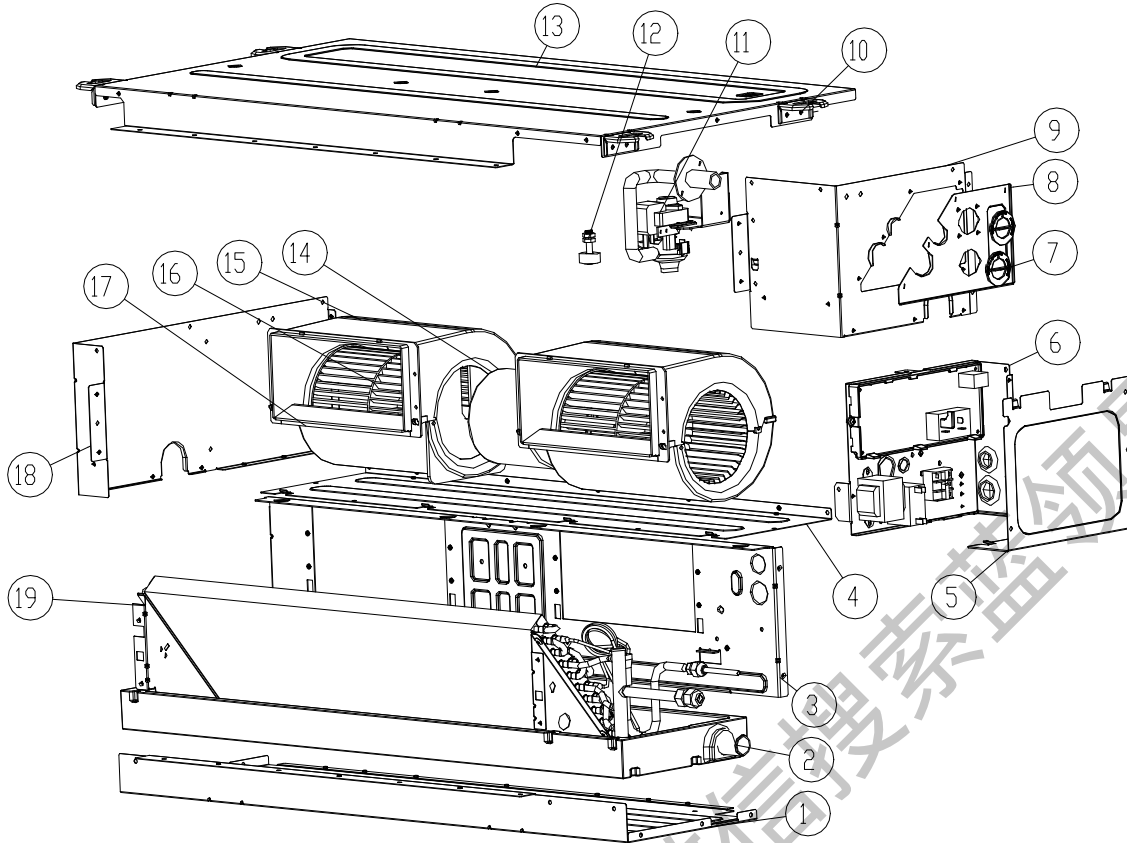


- ◇ Signal line connection: connect the wire of remote controller receiver to the CN-DISP terminal board on PCB of indoor unit wire box then fix it.

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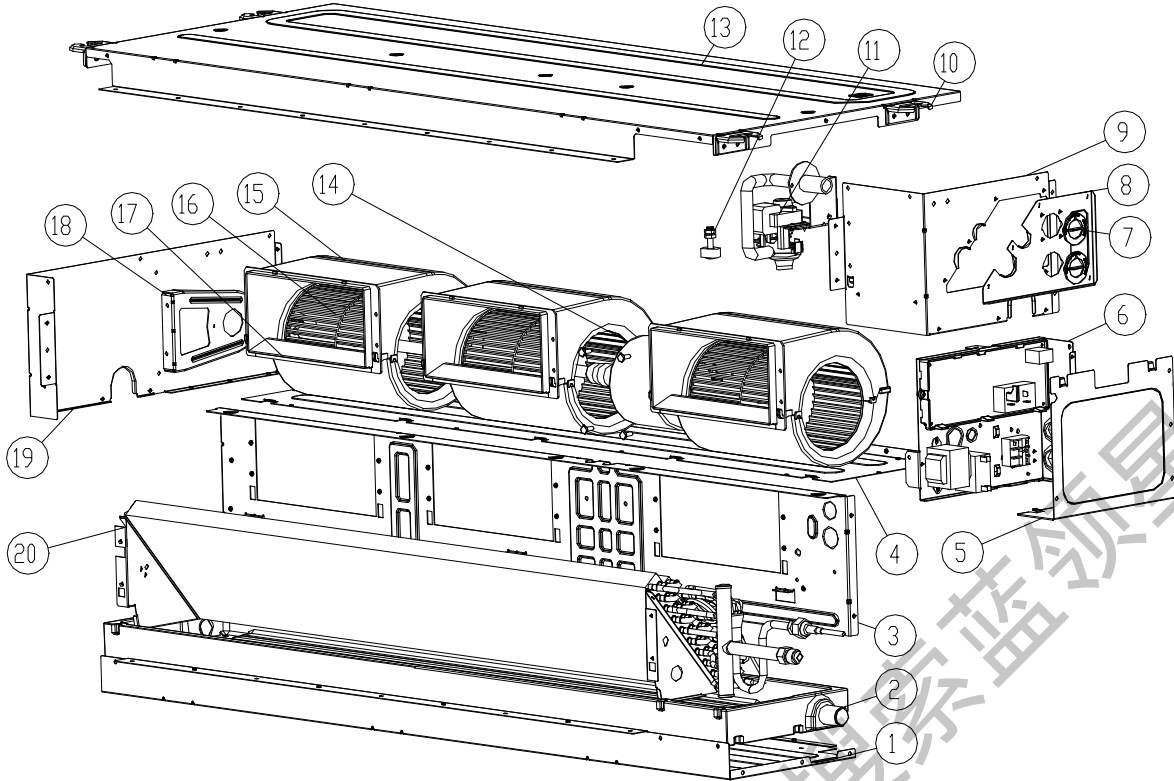
7. Explode view

AMSD-H07/4R1,AMSD-H09/4R1,AMSD-H12/4R1



| N0. | Material code | Part Name | Qty | Remark |
|-----|----------------|------------------------------|-----|----------|
| 1 | 16421028000132 | Btm pan A | 1 | |
| 2 | 16320009000001 | Drip tray asm | 1 | |
| 3 | 16421002000295 | Bracket fan blower | 1 | |
| 4 | 16421028000133 | Btm pan B | 1 | |
| 5 | 16421038000171 | Cover elec Box | 1 | |
| 6 | 16330001000013 | Asm control box | 1 | |
| 6.1 | 11222542000029 | Main PCB | 1 | |
| 6.2 | 16427001000064 | Terminal block | 1 | |
| 6.3 | 16422005000002 | Transformer | 1 | |
| 6.4 | 11330010000052 | Fan capacitor | 1 | |
| 6.5 | 16430007000003 | Air sensor 15K3950 XH2 0.5m | 1 | |
| 6.6 | 16430007000007 | Coil sensor 20K3950 XH2 0.5m | 1 | |
| 6.7 | 11220544000008 | Wire clip | 1 | |
| 7 | 16420011000010 | Knob | 2 | |
| 8 | 16421014000060 | Plate valve | 1 | |
| 9 | 16421001000554 | Plate right Side | 1 | |
| 10 | 16421040000042 | Plate hanging | 4 | |
| 11 | 16440001000017 | Drain pump | 1 | optional |
| 12 | 16445034000012 | Switch floating sensor | 1 | optional |
| 13 | 16421005000439 | Plate top cover | 1 | |
| 14 | 16430001000510 | Fan motor | 1 | |
| 15 | 16444002000016 | Top blower housing | 2 | |
| 16 | 16444001000033 | Fan blower | 2 | |
| 17 | 16444002000017 | Btm blower housing | 2 | |
| 18 | 16421001000555 | Plate left Side | 1 | |
| 19 | 16324009000169 | Evap asm | 1 | |

AMSD-H18/4R1



| N0. | Material code | Part Name | Qty | Remark |
|-----|----------------|------------------------------|-----|----------|
| 1 | 16421028000134 | Btm pan A | 1 | |
| 2 | 16320009000005 | Drip tray asm | 1 | |
| 3 | 16421002000296 | Bracket fan blower | 1 | |
| 4 | 16421028000135 | Btm pan B | 1 | |
| 5 | 16421038000171 | Cover elec Box | 1 | |
| 6 | 16330001000013 | Asm control box | 1 | |
| 6.1 | 11222542000029 | Main PCB | 1 | |
| 6.2 | 16427001000064 | Terminal block | 1 | |
| 6.3 | 16422005000002 | Transformer | 1 | |
| 6.4 | 11330010000052 | Fan capacitor | 1 | |
| 6.5 | 16430007000003 | Air sensor 15K3950 XH2 0.5m | 1 | |
| 6.6 | 16430007000007 | Coil sensor 20K3950 XH2 0.5m | 1 | |
| 6.7 | 11220544000008 | Wire clip | 1 | |
| 7 | 16420011000010 | Knob | 2 | |
| 8 | 16421014000060 | Plate valve | 1 | |
| 9 | 16421001000554 | Plate right Side | 1 | |
| 10 | 16421040000042 | Plate hanging | 4 | |
| 11 | 16440001000017 | Drain pump | 1 | optional |
| 12 | 16445034000012 | Switch floating sensor | 1 | optional |
| 13 | 16421005000440 | Plate top cover | 1 | |
| 14 | 16430001000593 | Fan motor | 1 | |
| 15 | 16444002000016 | Top blower housing | 3 | |
| 16 | 16444001000033 | Fan blower | 3 | |
| 17 | 16444002000017 | Btm blower housing | 3 | |
| 18 | 16421026000270 | Bracket bearing | 1 | |
| 19 | 16421001000555 | Plate left Side | 1 | |
| 20 | 16324009000175 | Evap asm | 1 | |

Wall Mounted Type

| | |
|-------------------------------|-----------|
| 1. Function Introduction..... | 错误！未定义书签。 |
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1. Function Introduction



Anti-cold-air (Heat pump only)

When starting the heating operation, the fan speed is regulated automatically from the lowest grade to the preset level, according to the temperature rising of evaporator. The function can prevent cold air blowing out at the beginning of the operation, which avoids the discomfort to the user.



Self-diagnosis function

Monitoring some abnormal operations or parts failures, which happens microcomputer of the air conditioner which switch off and protect the system automatically. Meanwhile, the error or protection code will be displayed on the indoor unit.



24-hour timer

User can set on the timer to turn on or off the air conditioner any time within 24 hours.



Force cooling

This function is convenient when user can't find the remote controller.



Intelligent defrosting

Normal defrost function can only be operated in certain time, but AUX commercial air conditioner's intelligent defrost can start automatically according to the surrounding condition.



Auto restart

If the machine is suddenly shut down during operation, the unit will record the operating mode, and restore to it when the power is on.



Sleep Mode

User can select mode after pressing time-off button, this function will adjust temperature automatically, which makes a comfortable sleep environment and save energy.



Low ambient cooling

The air conditioner with a special built-in low ambient cooling component can be used in temperature as low as -15C for cooling operation.

| Function | Name | AMWM-H*/4R1(#) | | | |
|----------------------|------------------------------|----------------|----|----|----|
| | | 07 | 09 | 12 | 18 |
| Protection Function | Anti-freeze protection | ○ | ○ | ○ | ○ |
| | Sensor failure alarm | ○ | ○ | ○ | ○ |
| | Error code display function | ○ | ○ | ○ | ○ |
| Comfortable Function | Cooling | ○ | ○ | ○ | ○ |
| | Heating | ○ | ○ | ○ | ○ |
| | 3 fan speed | ○ | ○ | ○ | ○ |
| | Auto-restart (optional) | ○ | ○ | ○ | ○ |
| | Anti-cold wind | ○ | ○ | ○ | ○ |
| | Blow exhaust heat | ○ | ○ | ○ | ○ |
| | Timer | ○ | ○ | ○ | ○ |
| Opretating display | clock display | ○ | ○ | ○ | ○ |
| | operating mode display | ○ | ○ | ○ | ○ |
| | fan speed display | ○ | ○ | ○ | ○ |
| | defrosting display | ○ | ○ | ○ | ○ |
| | timing on/off display | ○ | ○ | ○ | ○ |
| | sleeping display | ○ | ○ | ○ | ○ |
| Operation mode | Auto operation | ○ | ○ | ○ | ○ |
| | Dehumidify operation | ○ | ○ | ○ | ○ |
| | Auto defrosting | ○ | ○ | ○ | ○ |
| | Ventilation function | ○ | ○ | ○ | ○ |
| Health function | Removable air filter | ○ | ○ | ○ | ○ |
| | fresh air function preserved | ○ | ○ | ○ | ○ |

2. Specification

| Model | Indoor | Unit | AMWM-H07/4R1(L) | AMWM-H09/4R1(L) | AMWM-H12/4R1(L) | AMWM-H18/4R1(L) |
|------------------|--------------------|-------------------|--------------------------|------------------|-------------------|-------------------|
| Capacity | Cooling | Btu/h | 7165(3855-9220) | 8870(4780-11260) | 12285(5800-12625) | 17745(8530-19790) |
| | | kW | 2.05(1.13-2.70) | 2.55(1.40-3.30) | 3.60(1.70-3.70) | 5.20(2.50-5.80) |
| | Heating | Btu/h | 7510(3340-8530) | 9215(4095-10240) | 12625(5120-12625) | 18085(7680-19790) |
| | | kW | 2.15(0.98-2.50) | 2.65(1.20-3.00) | 3.70(1.50-3.70) | 5.0(2.25-5.80) |
| Electric Data | Power Supply | V~,Hz ,Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power | W | 40(12~68) | 40(12~68) | 40(12~68) | 63(16~88) |
| | Heating Power | W | 40(12~68) | 40(12~68) | 40(12~68) | 63(16~88) |
| Indoor Fan Motor | Model | / | YYK19-4 | YYK19-4 | YYK19-4 | YYK30-4 |
| | Output Power | W | 19 | 19 | 19 | 30 |
| | Capacitor | uF | 1.5 | 1.5 | 1.5 | 3 |
| | Speed (Hi/Mi/Lo) | r/min | 1030/900/850 | 1030/900/850 | 1030/900/850 | 1230/1080/970 |
| Indoor Coil | Number Of Row | / | 2 | 2 | 2 | 2 |
| | Tube x Row Pitch | mm | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 |
| | Fin Pitch | mm | 1.4 | 1.4 | 1.4 | 1.4 |
| | Fin Material | / | Hydrophilic aluminum fin | | | |
| | Tube Material | mm | φ7, Inner grooved | | | |
| | Coil L x H x W | mm | 602x164x 25.4 | 602x164x 25.4 | 602x164x 25.4 | 722x164x 25.4 |
| | Heat Exchange Area | m ² | 5.58 | 5.58 | 5.58 | 5.58 |
| Performance | Air Flow Volume | CFM | 969/765/672 | 969/765/672 | 969/765/672 | 1700/1462/1170 |
| | | m ³ /h | 570/450/395 | 570/450/395 | 570/450/395 | 1000/860/688 |
| | Sound Pressure | dB(A) | 40/38/34 | 40/38/34 | 42/40/36 | 45/42/35 |
| Dimension | Net Dim (W*D*H) | mm | 800×300×198 | 800×300×198 | 800×300×198 | 970×315×235 |
| | Pack Dim (W*D*H) | mm | 835×355×255 | 835×355×255 | 835×355×255 | 1010×370×290 |
| Weight | Net | kg | 10 | 10 | 10 | 13 |
| | Gross | kg | 11.5 | 11.5 | 11.5 | 16 |
| Refrigerant Type | / | | R410a | R410a | R410a | R410a |
| Pipe Dia | Liquid Side | mm(in ch) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) |
| | Gas Side | mm(in ch) | 9.52(3/8) | 9.52(3/8) | 9.52(3/8) | 12.7(1/2) |
| | Drainage | mm | 16.5 | 16.5 | 16.5 | 16.5 |
| Loading Qty | 20/40/40H | unit | 422/830/948 | 422/830/948 | 422/830/948 | 286/588/675 |

| Model | Indoor | Unit | AMWM-H07/4R1(F) | AMWM-H09/4R1(F) | AMWM-H12/4R1(F) | AMWM-H18/4R1(F) |
|-------------------|---------------------------------|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Capacity | Cooling | Btu/h | 7165(3855-9220) | 8870(4780-11260) | 12285(5800-12625) | 17745(8530-19790) |
| | | kW | 2.05(1.13-2.70) | 2.55(1.40-3.30) | 3.60(1.70-3.70) | 5.20(2.50-5.80) |
| | Heating | Btu/h | 7510(3340-8530) | 9215(4095-10240) | 12625(5120-12625) | 18085(7680-19790) |
| | | kW | 2.15(0.98-2.50) | 2.65(1.20-3.00) | 3.70(1.50-3.70) | 5.0(2.25-5.80) |
| Electric Data | Power Supply | V~,Hz,Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power Input | W | 40(12~68) | 40(12~68) | 40(12~68) | 63(16~88) |
| | Heating Power Input | W | 40(12~68) | 40(12~68) | 40(12~68) | 63(16~88) |
| Indoor Fan Motor | Model | / | YYK14-4 | YYK14-4 | YYK14-4 | YYK30-4 |
| | Output Power | W | 14 | 14 | 14 | 30 |
| | Capacitor | uF | 1.5 | 1.5 | 1.5 | 3 |
| | Speed (Hi/Mi/Lo) | r/min | 1130/1000/850 | 1130/1000/850 | 1130/1000/850 | 1130/1000/900 |
| Indoor Coil | a.Number Of Row | / | 2 | 2 | 2 | 2 |
| | b.Tube Pitch(a)x Row Pitch(b) | mm | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 | 20.5x 12.7 |
| | c.Fin Pitch | mm | 1.3 | 1.3 | 1.3 | 1.4 |
| | d.Fin Material | / | Hydrophilic aluminum fin | Hydrophilic aluminum fin | Hydrophilic aluminum fin | Hydrophilic aluminum fin |
| | e.Tube Outside Dia.And Material | mm | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved |
| | f.Coil Length x Height x Width | mm | 560x286x 25.4 | 560x286x 25.4 | 560x286x 25.4 | 670x328x 25.4 |
| | g.Heat Exchanging Area | m ² | 5.46 | 5.46 | 5.68 | 6.57 |
| Performance | Air Flow Volume | CFM | 935/816/629 | 935/816/629 | 935/816/629 | 1530/1360/1156 |
| | | m ³ /h | 550/480/370 | 550/480/370 | 550/480/370 | 900/800/680 |
| | Sound Pressure Noise Level | dB(A) | 40/38/34 | 40/38/34 | 42/40/36 | 45/42/35 |
| Dimension | Net Dimension (W*D*H) | mm | 750×285×200 | 750×285×200 | 750×285×200 | 900×310×225 |
| | Packing Dimension (W*D*H) | mm | 800×345×265 | 800×345×265 | 800×345×265 | 950×380×290 |
| Weight | Net | kg | 8 | 8 | 8 | 12 |
| | Gross | kg | 10.5 | 10.5 | 10.5 | 14 |
| Refrigerant Type | / | | R410a | R410a | R410a | R410a |
| Pipe Diameter | Liquid Side | mm (inch) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) | 6.35(1/4) |
| | Gas Side | mm (inch) | 9.52(3/8) | 9.52(3/8) | 9.52(3/8) | 12.7(1/2) |
| | Drainage | mm | 16.5 | 16.5 | 16.5 | 16.5 |
| Stuffing Quantity | 20/40/40H | unit | 452/860/978 | 452/860/978 | 452/860/978 | 316/618/705 |

Note:

- Cooling capacity test Condition:(27°CDB,19°CWB Indoor/35°CDB,24°CWB Outdoor);
Heating capacity test Condition:(20°CDB Indoor/7°CDB,6°CWB Outdoor);
connecting pipe length: 5M.
- Datas may be changed with unit improvement. We keep the right to change the datas or specifications without prior notice, please follow the datas listed on the nameplate.

3. Capacity amendment

3.1 Running range

| | | | | | |
|--------------------------|---------|----------------|------|-------|-------|
| Cooling capacity (Btu/h) | | 7000 | 9000 | 12000 | 18000 |
| Power supply | | 220-240V~/50Hz | | | |
| Voltage | | 187~253V | | | |
| Ambient temperature | Cooling | -10~52℃ | | | |
| | Heating | -15~24℃ | | | |

3.2 Amendment coefficient of cooling capacity under different indoor/outdoor temperature K1

| Indoor temperature(℃) | | Outdoor temperature(DB) | | | | | |
|-----------------------|----|-------------------------|------|------|------|------|------|
| DB | WB | 25 | 30 | 35 | 40 | 45 | 50 |
| 22 | 15 | 0.97 | 0.92 | 0.87 | 0.96 | 0.77 | 0.75 |
| 24 | 17 | 1.03 | 0.98 | 0.94 | 0.89 | 0.84 | 0.80 |
| 27 | 19 | 1.10 | 1.05 | 1 | 0.95 | 0.90 | 0.86 |
| 29 | 21 | 1.16 | 1.11 | 1.06 | 1.02 | 0.96 | 0.91 |
| 32 | 23 | 1.22 | 1.17 | 1.13 | 1.08 | 1.02 | 0.98 |

Actual cooling capacity calculation:

Actual cooling capacity=amendment coefficient of cooling capacity × nominal cooling capacity

——nominal cooling capacity could be found from the performance parameters list

——amendment coefficient of cooling capacity could be found from table above.

3.3 Amendment coefficient of heating capacity under different indoor/outdoor temperature K2

| Outdoor temperature(℃) | | Indoor temperature(DB) | | |
|------------------------|-----|------------------------|------|------|
| DB | WB | 15 | 20 | 25 |
| -15 | -16 | 0.64 | 0.59 | 0.55 |
| -10 | -12 | 0.71 | 0.66 | 0.62 |
| -7 | -8 | 0.76 | 0.72 | 0.67 |
| -1 | -2 | 0.79 | 0.74 | 0.70 |
| 2 | 1 | 0.81 | 0.76 | 0.72 |
| 7 | 6 | 1.04 | 1 | 0.96 |
| 10 | 9 | 1.10 | 1.06 | 1.01 |
| 15 | 12 | 1.16 | 1.12 | 1.07 |

Actual heating capacity calculation:

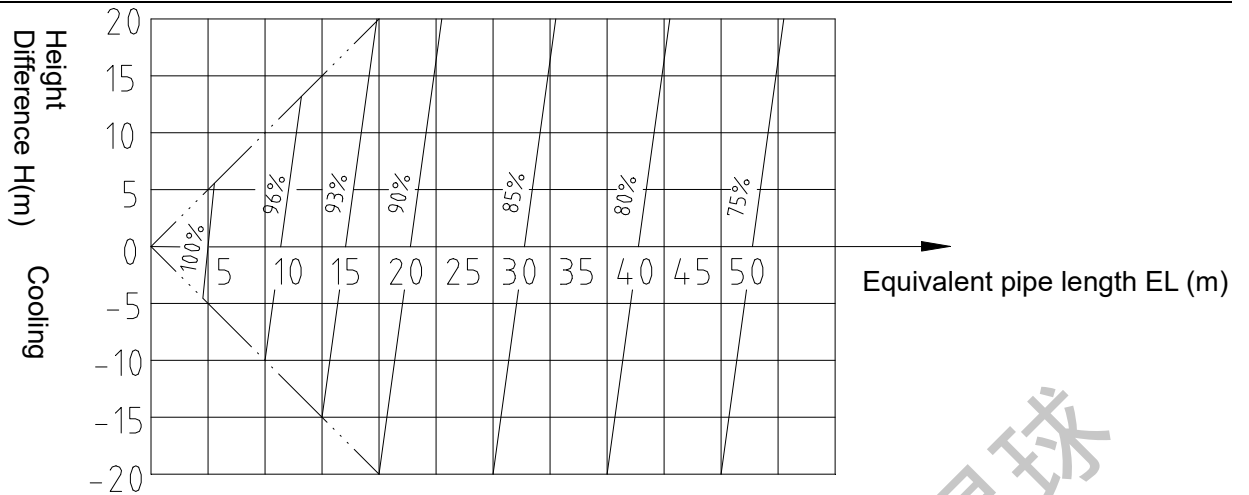
Actual heating capacity=amendment coefficient of heating capacity × nominal heating capacity

——nominal heating capacity could be found from the performance parameters list

——amendment coefficient of heating capacity could be found from table above.

3.4 Amendment coefficients of heating and cooling capacity under different height drop K3

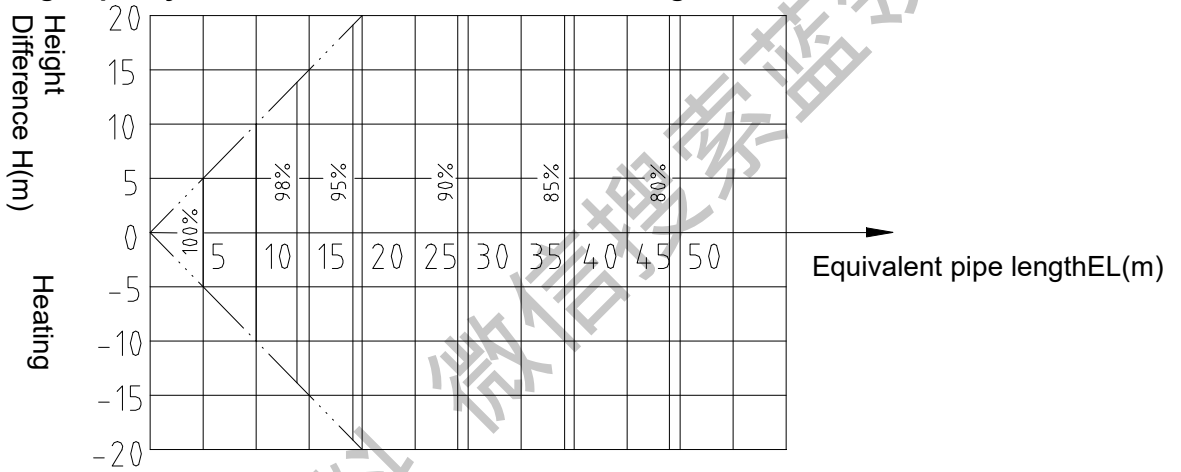
Different Cooling Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

Different Heating Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit — Height of Indoor Unit

3.5 Correction capability

Cooling capacity = nominal cooling capacity xK1xK3

Heating capacity = nominal heating capacity xK2xK3

3.6 Equivalent Pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Bend and Oil Loop Conversion tablet

| Pipe Dia.(mm) | Type | Bend | Oil Loop |
|---------------|------|------|----------|
| 6.35 | | 0.10 | 0.7 |
| 9.52 | | 0.18 | 1.3 |
| 12.70 | | 0.20 | 1.5 |
| 15.88 | | 0.25 | 2.0 |
| 19.05 | | 0.35 | 2.4 |
| 22.02 | | 0.40 | 3.0 |

Equivalent Pipe length $L = \text{Actual Pipe length} + \text{Bend Qty} \times \text{Equivalent pipe bend length} + \text{Oil Loop Qty} \times \text{Equivalent Oil Loop length}$

Sample:

AMWM-H09/4R1(FA) Actual Pipe length is 25 meters, Gas pipe diameter is 9.52mm. If there's 5 bends and 2 oil loops during the installation, then the equivalent pipe length should be:

$$L = 25 + 0.18 \times 5 + 1.3 \times 2 = 28.5(\text{m})$$

◇ Specification of Connection Pipe for Indoor Unit and Outdoor Unit

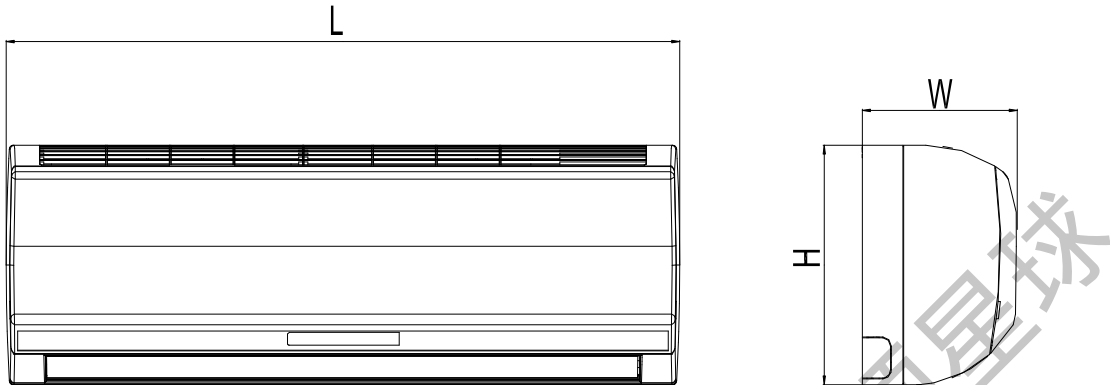
| Cooling Capacity(Btu/h) | | 7000 | 9000 | 12000 | 18000 |
|--|-------------|-------|------|-------|-------|
| Connection Pipe (mm) | Liquid Pipe | Φ6.35 | | | |
| | Gas Pipe | Φ9.52 | | Φ12.7 | |
| Max. Length(Each) | | 15 | | | |
| Max. Height (m) | | 10 | | | |
| Max. Bend Qty | | 5 | | | |
| Extra R410a per meter when the pipe length is more than 5 meter (kg) | | 0.022 | | | |

Caution:

1. The standard Pipe length is 5m, if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above Charging Data
2. The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;
3. If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 5m, an oil trap should be installed in the gas pipe for every 10 meters.

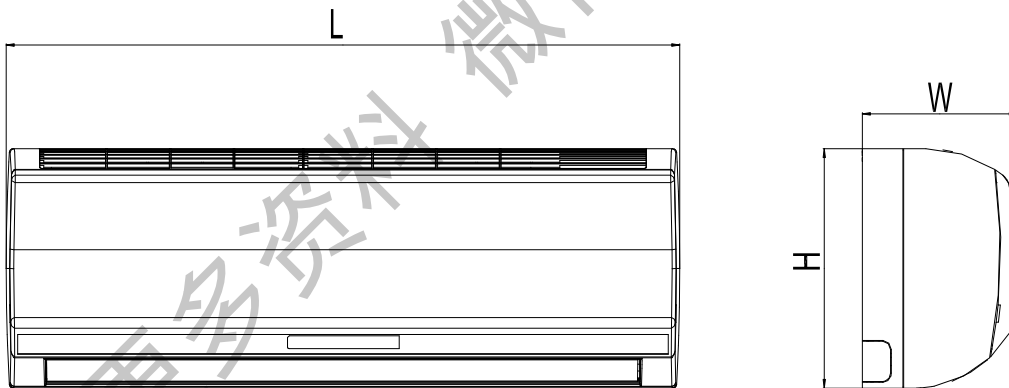
4. Dimension

AMWM-H07/4R1(L), AMWM-H09/4R1(L), AMWM-H12/4R1(L),AMWM-H18/4R1(L)



| Physical Dimension | | AMWM-H07/4R1(L) | AMWM-H09/4R1(L) | AMWM-H12/4R1(L) | AMWM-H18/4R1(L) |
|--------------------|----|-----------------|-----------------|-----------------|-----------------|
| Length | mm | 800 | 800 | 800 | 970 |
| Height | mm | 300 | 300 | 300 | 315 |
| Width | mm | 198 | 198 | 198 | 235 |

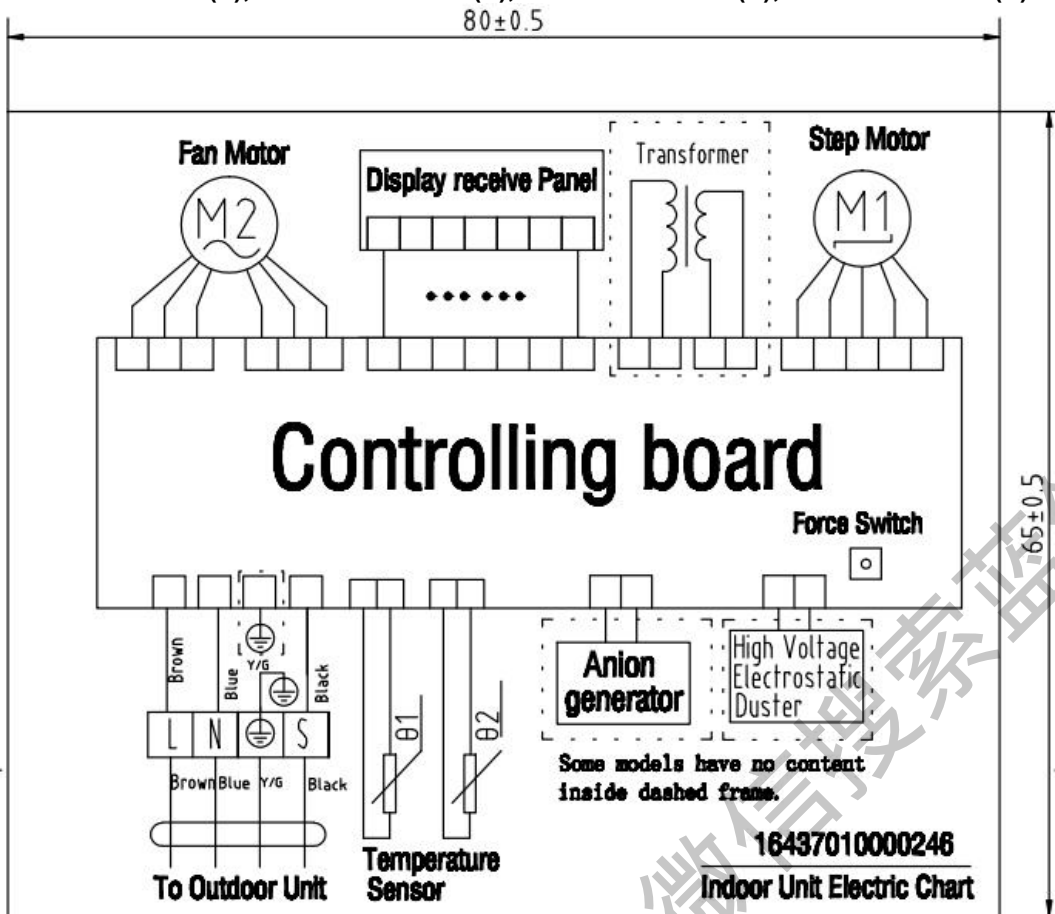
AMWM-H07/4R1(F), AMWM-H09/4R1(F), AMWM-H12/4R1(F),AMWM-H18/4R1(F)



| Physical Dimension | | AMWM-H07/4R1(F) | AMWM-H09/4R1(F) | AMWM-H12/4R1(F) | AMWM-H18/4R1(F) |
|--------------------|----|-----------------|-----------------|-----------------|-----------------|
| Length | mm | 750 | 750 | 750 | 900 |
| Height | mm | 285 | 285 | 285 | 310 |
| Width | mm | 200 | 200 | 200 | 225 |

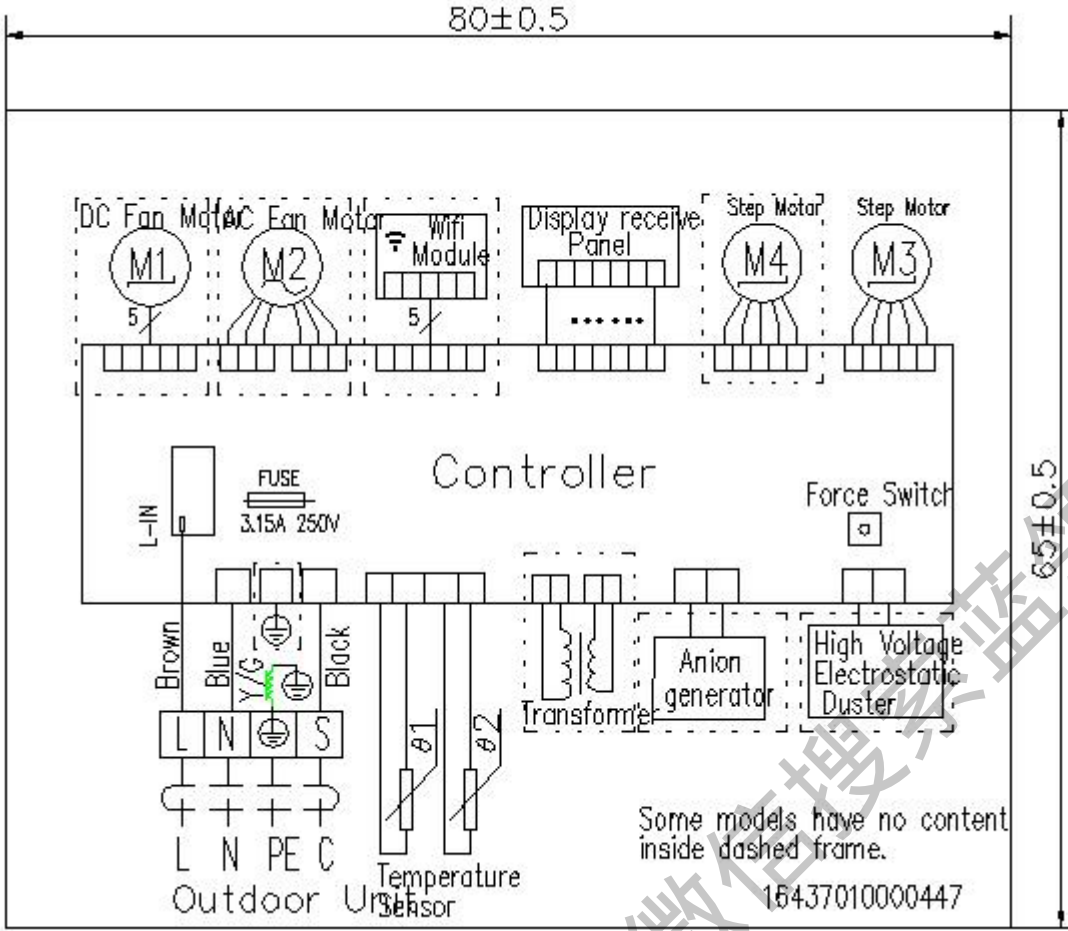
5. Electrical Diagram

AMWM-H07/4R1(L), AMWM-H09/4R1(L), AMWM-H12/4R1(L),AMWM-H18/4R1(L)



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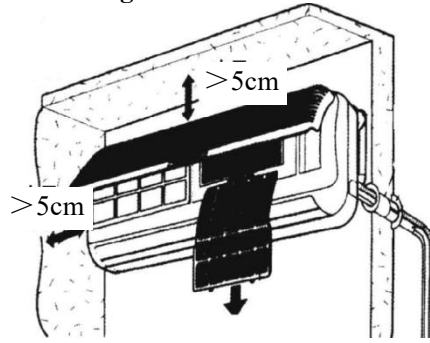
AMWM-H07/4R1(F), AMWM-H09/4R1(F), AMWM-H12/4R1(F),AMWM-H18/4R1(F)



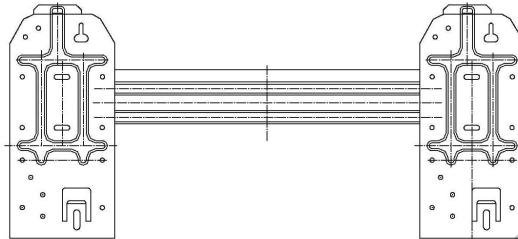
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6. Installation

6.1 Spacing Reserved Between the Surrounding of Indoor Unit and Barrier



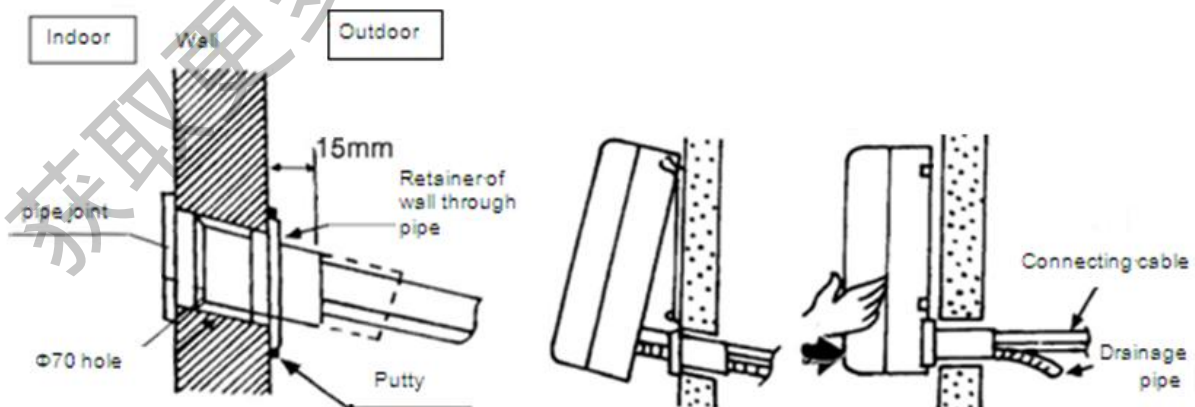
6.2 Hoisting of Indoor Unit



- ◇ The wall for installing indoor unit should be firm to prevent vibration. Horizontally install hanging plate on the wall with four cruciform screws to keep laterally horizontal and longitudinally vertical.
- ◇ Drill a $\Phi 70$ Auxiliary pipeline hole on lower left side or lower right side of hanging plate. The position of hole should slightly incline downwards.
- ◇ Hang indoor unit on hanging plate and move the unit to left or right to ensure hanging hook is correctly positioned on the hanging plate.

6.3 Installation of Sterilization Net

- ◇ Uplift panel of indoor unit, pull out the bulge in the middle of air filter downwards after uplifting;
- ◇ Completely snap sterilization net inside accessory bag into sterilization mounting support on air filter;
- ◇ Put back air filter in the original way, close the panel of indoor unit and tightly clamp;
- ◇ Push the lower left side and lower right side of indoor unit towards hanging plate until hanging hook inserts into groove and sends click sound.

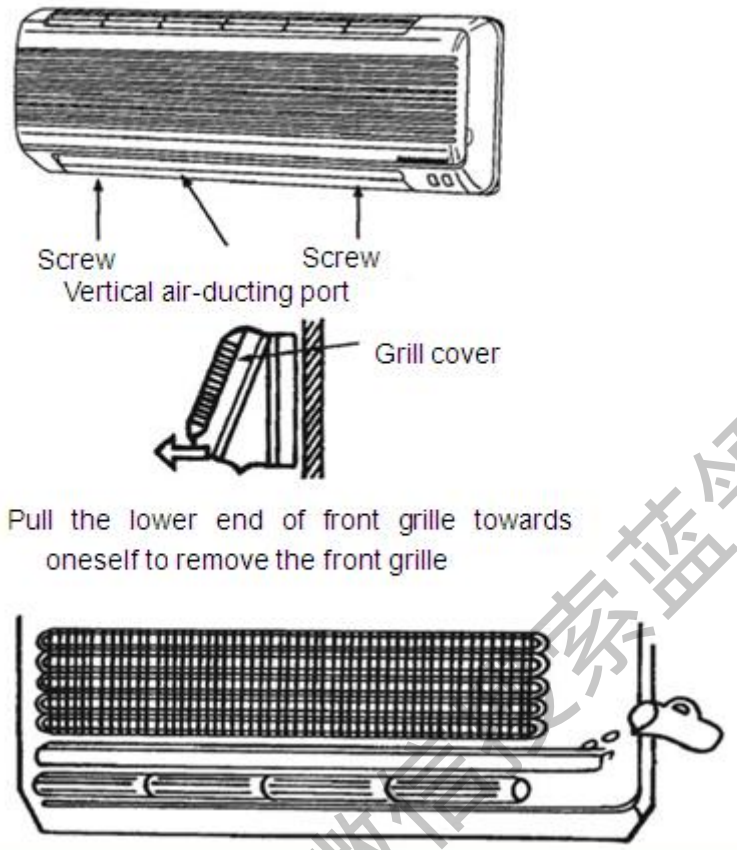


6.4 Drainage Checking

In case of maintenance, remove grille from casing of the unit according to the following procedures:

- ◇ As shown in right diagram, remove two screw caps on both sides of the front grille and then screw down two fixing screws.
- ◇ Pull the lower end of grille cover towards oneself to remove it.

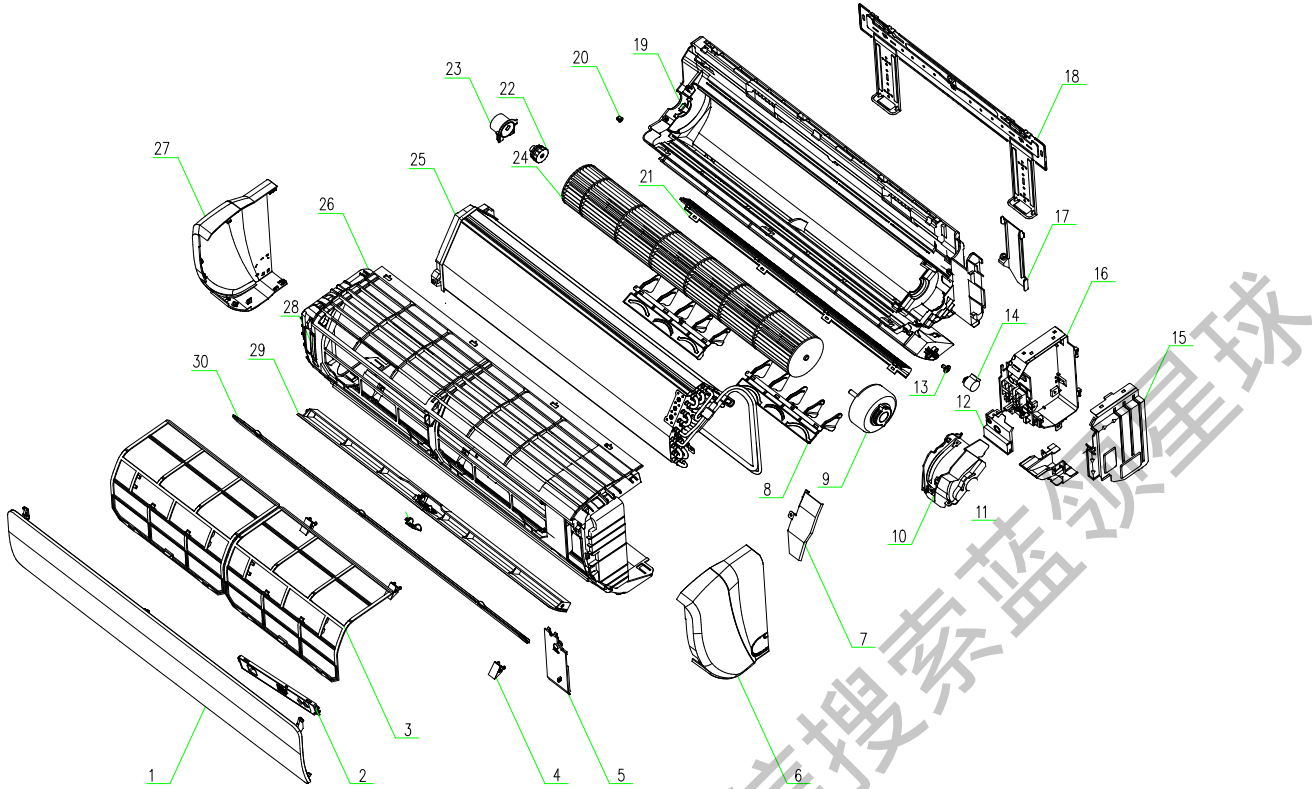
- ◇ Reinstall grille cover, then install the grille cover to proper position according to the reverse sequence of the above.
- ◇ Pour a glass of water into plastic drainage groove;
- ◇ Confirm if the water flows through the drainage outlet of indoor unit.



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7. Explode view

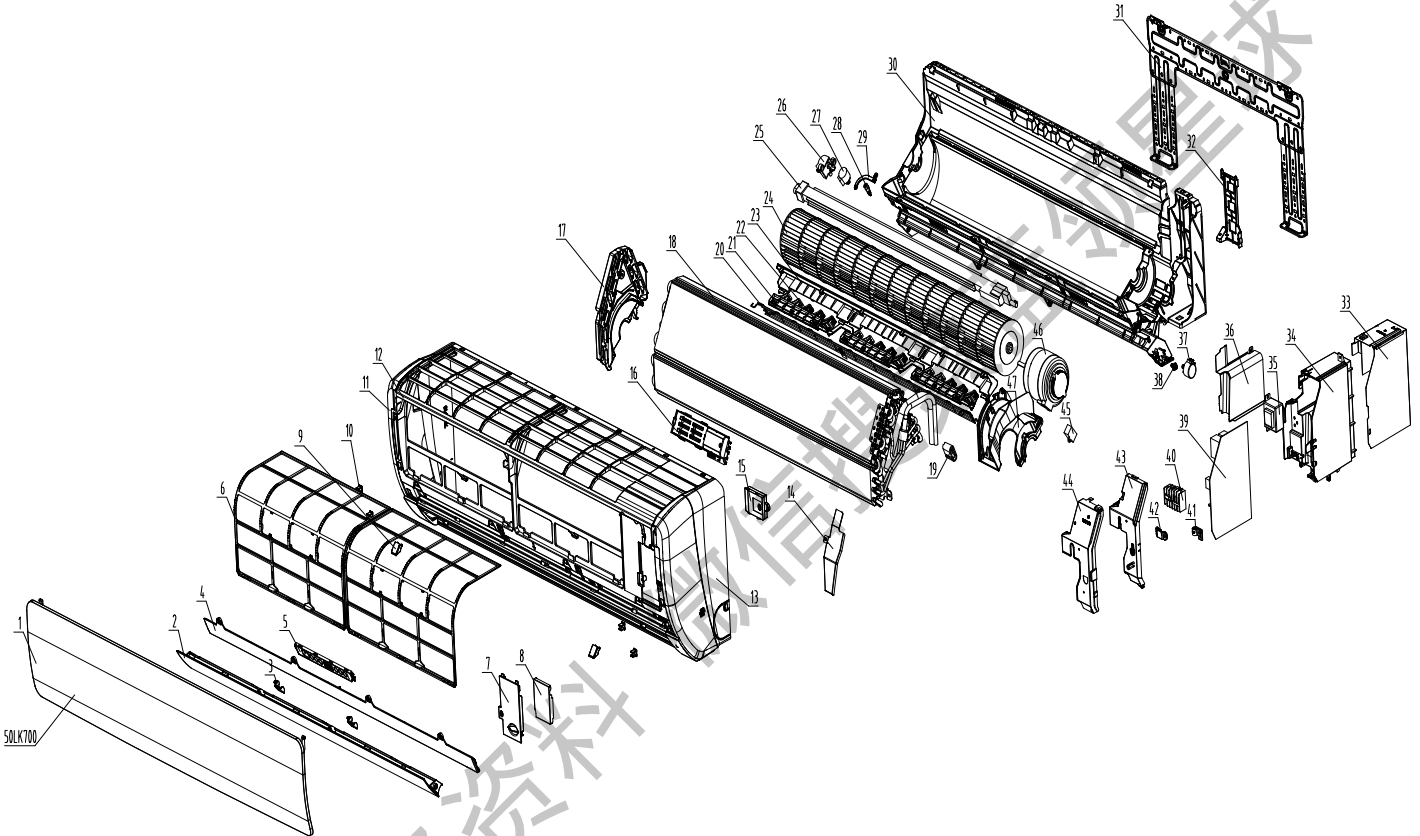
AMWM-H07/4R1(L), AMWM-H09/4R1(L), AMWM-H12/4R1(L)



| NO. | Material code | Part name | Qty | remarks |
|-----|----------------|----------------------------------|-----|---------|
| 1 | 11320003001172 | Panel | 1 | |
| 2 | 11222014000521 | Display board assembly | 1 | |
| 3 | 11220508000117 | Filter | 2 | |
| 4 | 11320096000041 | Screw cover | 3 | |
| 5 | 11220509000047 | Medium frame wiring cover | 1 | |
| 6 | 11320078000008 | Right-side cover | 1 | |
| 7 | 11320065000020 | Breakwater | 1 | |
| 8 | 11320017000118 | Air blade | 2 | |
| 9 | 11230003000139 | Indoor motor | 1 | |
| 10 | 11320052000032 | Motor cover | 1 | |
| 11 | 11320104000008 | Chassis supporting board | 1 | |
| 12 | 11221526000003 | Cover of electric controller box | 1 | |
| 13 | 11320079000013 | Step motor shaft sleeve | 1 | |
| 14 | 11230002000058 | Step motor | 1 | |
| 15 | 11321012000005 | Controller box sheet-metal A | 1 | |
| 16 | 11222009002506 | Main PCB | 1 | |
| 17 | 11320084000015 | Pipe clamp | 1 | |
| 18 | 11321003000028 | Mounting plate assembly | 1 | |
| 19 | 11220500000165 | Chassis | 1 | |
| 20 | 11320079000010 | Protecting bush | 1 | |
| 21 | 11320135000015 | Volute | 1 | |
| 22 | 11220551000003 | Cross flow fan rubber bearing | 1 | |

| | | | | |
|----|----------------|---------------------------|---|----------------------------------|
| 23 | 11320062000028 | Pubber bearing fixing peg | 1 | |
| 24 | 11220513000055 | Cross flow fan assembly | 1 | |
| 25 | 11224003000547 | Evaporator assembly | 1 | |
| 26 | 11320002000164 | Medium frame | 1 | |
| 27 | 11320078000007 | Left-side cover | 1 | |
| 28 | 11320043000015 | Supporting plate | 1 | |
| 29 | 11220534000058 | Air louver | 1 | |
| 30 | 11320061000275 | Decoration board | 1 | BDR model doesn't have this part |
| / | 11222001000724 | Remote controller | 1 | |

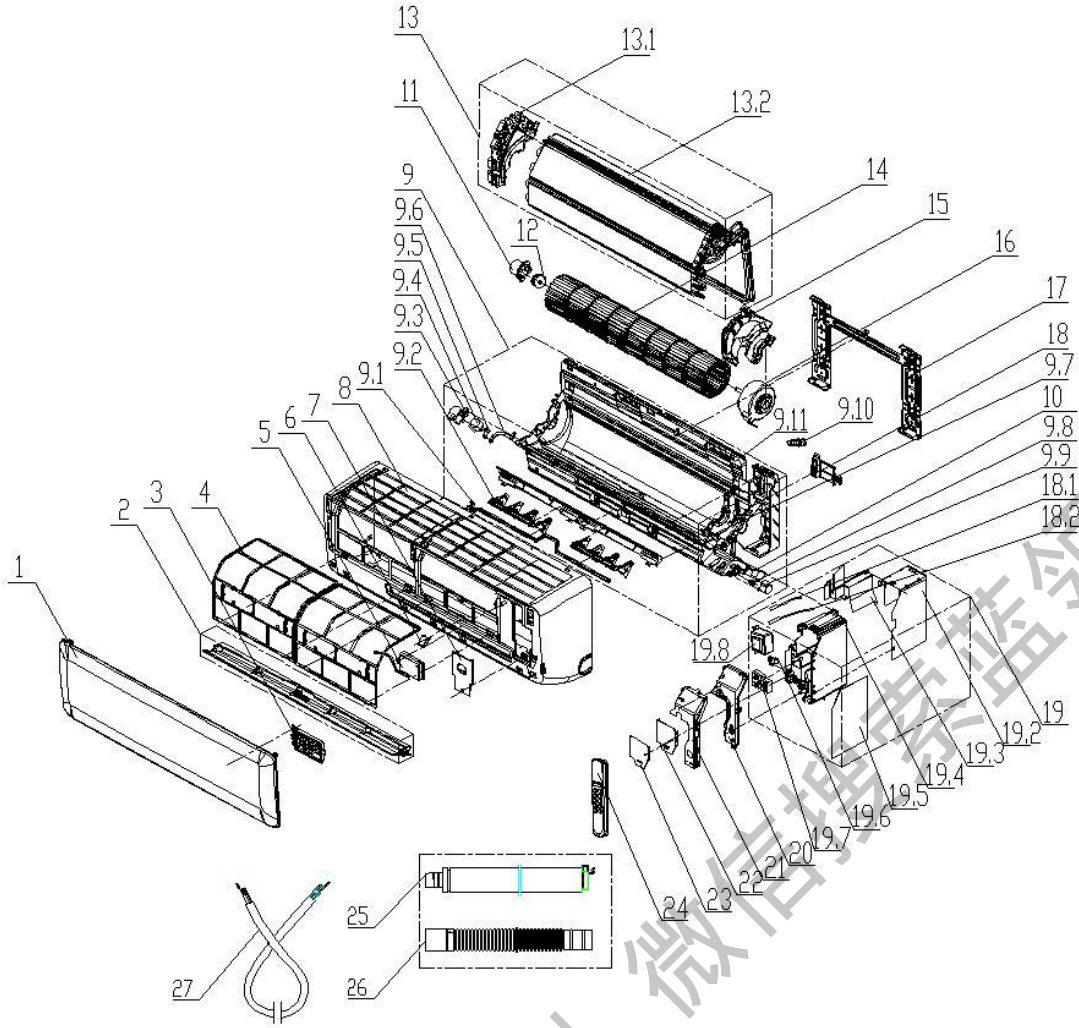
AMWM-H18/4R1(L)



| NO. | Material code | Part Name | Qty | remarks |
|-----|----------------|--------------------------------------|-----|----------------------------|
| 1 | 11320003001846 | Panel | 1 | |
| 2 | 11320005000225 | Air louver | 1 | |
| 3 | 11320080000007 | Air louver fixing peg | 2 | |
| 4 | 11320094000054 | Decoration board | 1 | BDR doesn't have this part |
| 5 | 11222014000487 | Display board assembly | 1 | |
| 6 | 11220508000101 | Filter | 2 | |
| 7 | 11320076000057 | Medium frame wiring cover | 1 | |
| 8 | 11321071000006 | Medium frame wiring cover scaleboard | 1 | |
| 9 | 11320096000047 | Screw cover | 2 | |
| 10 | 11320106000008 | Panel clamp | 4 | |
| 11 | 11320078000011 | Left-side cover | 1 | |
| 12 | 11320002000176 | Medium frame | 1 | |
| 13 | 11320078000012 | Right-side cover | 1 | |
| 14 | 11320065000020 | Breakwater | 1 | |

| | | | | |
|----|----------------|------------------------------------|---|----------|
| 17 | 11320015000122 | Evaporator left side support board | 1 | |
| 18 | 11224003000541 | Evaporator assembly | 1 | |
| 21 | 11320017000107 | Air blade | 3 | |
| 23 | 11320135000007 | Volute | 1 | |
| 24 | 11220513000058 | Cross flow fan assembly | 1 | |
| 26 | 11320001000194 | Motor chassis | 1 | optional |
| 27 | 11230002000071 | Step motor | 1 | optional |
| 30 | 11320001000191 | Chassis | 1 | |
| 31 | 11221500000028 | Mounting plate assembly | 1 | |
| 32 | 11320084000015 | Pipe clamp | 1 | |
| 33 | 11321035000022 | Controller box sheet-metal A | 1 | |
| 34 | 11320058000055 | Electric controller box | 1 | |
| 35 | 11329009000014 | Transformer | 1 | |
| 36 | 11321035000023 | Controller box sheet-metal B | 1 | |
| 37 | 11230002000071 | Step motor | 1 | |
| 38 | 11320079000012 | Step motor shaft sleeve | 1 | |
| 39 | 11222009002500 | Main PCB | 1 | |
| 40 | 11330037000136 | Terminal board | 1 | |
| 41 | 11321001000009 | Clamp | 1 | |
| 42 | 11320010000039 | Cable clamp | 1 | |
| 43 | 11320058000055 | Cover of electric controller box | 1 | |
| 44 | 11321020000029 | Controller box metal plate | 1 | |
| 45 | 11330016000016 | Anion generator | 1 | |
| 46 | 11230003000145 | Indoor motor | 1 | |
| 47 | 11320052000034 | Motor cover | 1 | |
| / | 11222001000724 | Remote controller | 1 | |

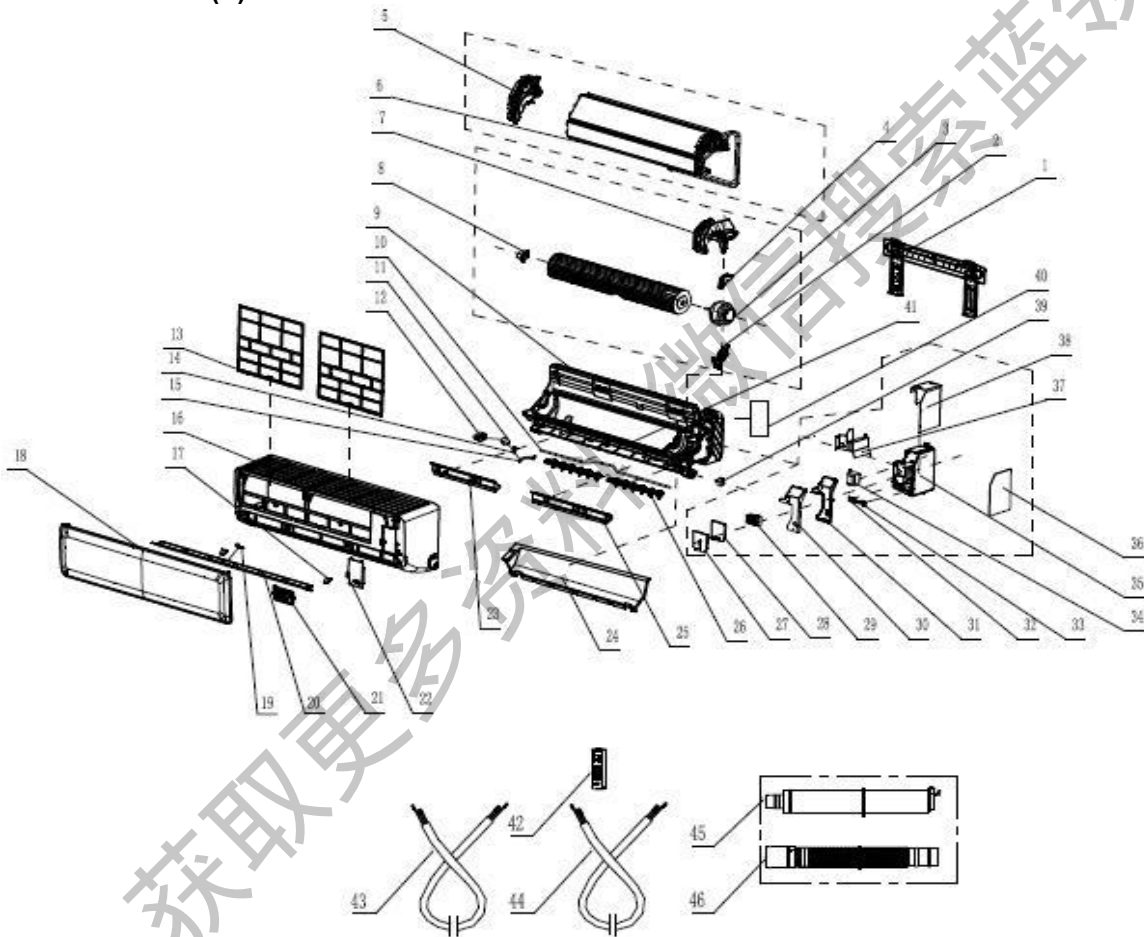
AMWM-H07/4R1(F), AMWM-H09/4R1(F), AMWM-H12/4R1(F)



| NO. | Material code | Part name | Qty | remarks |
|------|----------------|-------------------------------|-----|---------|
| 1 | 11320003002093 | Panel | 1 | |
| 2 | 11320017000124 | Air louver (Horizontal) | 1 | |
| 3 | 11222014000608 | Display board | 1 | |
| 4 | 11220508000139 | Filter | 2 | |
| 6 | 11320096000075 | Screw cover | 1 | |
| 7 | 11320076000084 | Medium frame wiring cover | 1 | |
| 8 | 11320002000234 | Medium frame | 1 | |
| 9 | 11220500000215 | Chassis assembly | 1 | |
| 9.2 | 11320017000124 | Left-right swing blade | 2 | |
| 9.7 | 11320135000018 | Volute | 1 | |
| 9.8 | 11320079000016 | Step motor shaft sleeve | 1 | |
| 9.9 | 11230002000086 | Air louver step motor | 1 | |
| 9.10 | 11333003000009 | Stopples | 1 | |
| 9.11 | 11320001000241 | Chassis | 1 | |
| 11 | 11320062000028 | Bearing fixed chassis | 1 | |
| 13 | 16324001000149 | Evaporator assembly | 1 | |
| 13.1 | 11320015000139 | Evaporator left side carriage | 1 | |
| 13.2 | 11224009000284 | Evaporator assembly A | 1 | |
| 13.2 | 11224009000285 | Evaporator assembly B | 1 | |

| | | | | |
|------|----------------|------------------------------|---|--|
| 14 | 11220513000065 | Cross flow fan | 1 | |
| 15 | 11320052000044 | Motor cover | 1 | |
| 16 | 11230003000139 | IDU fan motor | 1 | |
| 17 | 11221500000034 | Mounting plate assembly | 1 | |
| 18 | 11320084000013 | Pipe clamp | 1 | |
| 19 | 11222549000007 | Main controller | 1 | |
| 19.1 | 11329013000103 | Temperature sensor | 1 | |
| 19.4 | 11320057000082 | Control box | 1 | |
| 19.5 | 11222009003333 | Main control board | 1 | |
| 19.7 | 11330037000136 | Terminal board | 1 | |
| 20 | 11320058000067 | Control box cover | 1 | |
| 24 | 11222001000139 | Remote controller | 1 | |
| 25 | 11220506000002 | Water outlet pipe components | 1 | |
| 26 | 11320020000008 | Outlet pipe | 1 | |

AMWM-H18/4R1(F)



| NO. | Material code | Part name | Qty | remarks |
|------|----------------|-------------------------------|-----|---------|
| 1 | 11321003000028 | Mounting plate assembly | 1 | |
| 2 | 11333003000009 | Stopples | 1 | |
| 3 | 11230003000145 | IDU fan motor | 1 | |
| 4 | 11320079000010 | Shaft sleeve | 1 | |
| 5 | 11320015000138 | Evaporator left side carriage | 1 | |
| 6 | 11224003000695 | Evaporator assembly | 1 | |
| 6.1 | 11224009000305 | Evaporator unit A | 1 | |
| 6.2 | 11224009000306 | Evaporator unit B | 1 | |
| 6.3 | 11225501000447 | Outlet pipe assembly | 1 | |
| 6.4 | 11225502000338 | Inlet pipe assembly | 1 | |
| 7 | 11320052000043 | Motor cover | 1 | |
| 8 | 11220513000066 | Cross flow fan | 1 | |
| 9 | 11220500000212 | Chassis assembly | 1 | |
| 10 | 11320085000093 | Guide vane linkage | 1 | |
| 13 | 11220508000140 | Filter | 2 | |
| 16 | 11320002000232 | Medium frame | 1 | |
| 17 | 11320096000075 | Screw cover | 1 | |
| 18 | 11320003002071 | Panel | 1 | |
| 19 | 11320080000007 | Air guiding door fixing pin | 1 | |
| 20 | 11320005000287 | Air guiding door | 1 | |
| 21 | 11222014000608 | Display board | 1 | |
| 22 | 11320076000057 | Medium frame wiring cover | 1 | |
| 24 | 11320001000240 | Base | 1 | |
| 26 | 11320017000122 | Left-right swing blade | 2 | |
| 31 | 11320058000068 | Control box cover | 1 | |
| 35 | 11222003002681 | Main controller | 1 | |
| 35.1 | 11329013000103 | R temperature sensor | 1 | |
| 35.2 | 11330037000136 | R internal terminal board | 1 | |
| 36 | 11222009003332 | Main control board | 1 | |
| 38 | 11320057000083 | Control box | 1 | |
| 39 | 11230002000071 | Air louver step motor | 1 | |
| 41 | 11320084000013 | Pipe clamp | 1 | |
| 42 | 11222001000139 | Remote controller | 1 | |
| 45 | 11220506000002 | Water outlet pipe components | 1 | |
| 46 | 11320020000008 | Water outlet pipe | 1 | |

Part 3 Free Match outdoor unit

| | |
|--|-----------|
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1. Function Introduction

- ◇AUX DC Inverter Air Conditioner adopts the advanced 180 sine wave DC Inverter driving technology.
- ◇AUX DC Inverter Air Conditioner adopts PD frequency control technology to well control the room temperature.
- ◇Adjusting with EXV, the whole unit could achieve quick cooling/heating and the minimum temperature fluctuation of indoor unit.
- ◇Defrost Control: AUX DC Inverter Air Conditioner adopts intelligent defrosting technology that detect the frosting thickness, promotes the comfort when heating.
- ◇Auto-restart;
- ◇The universal series using L-N communication control between indoor and outdoor units, more reliable and easy to install, no need to special training for installation workers.
- ◇With multiple protection, the compressor could well run in reasonable operation range.
- ◇After adding the self-diagnose function and digital tube display function, the outdoor unit could be easily identify the reason of the fault.

2. Specification

| DC INVERTER | Model | | AM2-H18/4DR1A | AM3-H24/4DR1A | AM3-H27/4DR1A |
|-------------------------------|---------------------------------|-----------|------------------------|------------------------|------------------------|
| System Format | | | 1 drive 2 | 1 drive 3 | 1 drive 3 |
| Capacity | Cooling | Btu/h | 17060(7530-19790) | 24050(6824~25760) | 25660(7524~27600) |
| | | kW | 5.0(2.2-5.8) | 7.05(2.0~7.55) | 7.52(2.2~8.1) |
| | Heating | Btu/h | 18766(9385-21770) | 26440(8138~28150) | 27125(8138~29900) |
| | | kW | 5.5(2.75-6.38) | 7.75(2.2~8.25) | 7.95(2.39~8.75) |
| Electric Data | Power Supply | V~,Hz, Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power Input | W | 1540(280-2100) | 2280(550-3100) | 2350(580-3200) |
| | Heating Power Input | W | 1530(280-2100) | 2380(510-2750) | 2480(560-2830) |
| | Rated Current (cooling&heating) | A | 6.6/6.5 | 10.5/10.9 | 11.0/11.5 |
| Performance | SEER/SCOP | W/W | 6.20/4.03 | 6.15/4.08 | 6.14/4.10 |
| | Energy Rate | | A++/A+ | A++/A+ | A++/A+ |
| | Model | | DA150S1C-20KZ | DA250S2C-30MT | DA250S2C-30MT |
| | Quantity | | 1 | 1 | 1 |
| | Type | | Twin Rotary | Twin Rotary | Twin Rotary |
| | Brand | | GMCC | GMCC | GMCC |
| | Capacity | W | 4590 | 7690 | 7690 |
| | Input | W | 1205 | 2120 | 2120 |
| | Power Supply | V~,Hz, Ph | 220~240,50,1 | 220~240,50,1 | 220~240,50,1 |
| | Rated Current | A | 8.35 | 8.85 | 8.85 |
| | Operating Frequency | Hz | 60 | 60 | 60 |
| | Frequency Range | | 12~120 S ⁻¹ | 12~120 S ⁻¹ | 12~120 S ⁻¹ |
| | Refrigerant Oil | ml | 500(VG74) | 820(VG74) | 820(VG74) |
| Outdoor DC Inverter Fan Motor | Model | | CW70B-ZL | CW70B-ZL | CW70B-ZL |
| | Type | | DC Inverter | DC Inverter | DC Inverter |
| | Brand | | Panasonic | Panasonic | Panasonic |
| | Quantities | | 1 | 1 | 1 |
| | Insulation Class | | B | B | B |
| | Safe Class | | IP44 | IP44 | IP44 |
| | Input Power | W | 90 | 90 | 90 |
| | Output Power | W | 70 | 70 | 70 |
| | Capacitor | uF | / | / | / |
| | Speed | r/min | 900-200 | 900-200 | 900-200 |
| Outdoor Fan | Material | | Plastic | Plastic | Plastic |
| | Diameter | mm | Φ470×140 | Φ470×140 | Φ470×140 |
| | Fan Quantity | | 1 | 1 | 1 |
| Outdoor Coil | a.Number Of Row | | 1.5 | 2.5 | 2.5 |

AUX DC Inverter Free Match 50HZ R410A

Free Match outdoor unit

| | | | | | |
|--------------------------------|---------------------------------|-------------------|---------------------------|---------------------------|---------------------------|
| | b.Tube Pitch(a)x Row Pitch(b) | mm | 20.5×12.7 | 20.5×12.7 | 20.5×12.7 |
| | c.Fin Pitch | mm | 1.5 | 1.5 | 1.5 |
| | d.Fin Material | | Hydrophilic aluminum fin | Hydrophilic aluminum fin | Hydrophilic aluminum fin |
| | e.Tube Outside Dia.And Material | mm | φ7, Inner grooved | φ7, Inner grooved | φ7, Inner grooved |
| | f.Coil Length x Height x Width | mm | 779×615×12.7+493×615×12.7 | 763×615×25.4+450×615×12.7 | 763×615×25.4+450×615×12.7 |
| Air Flow Volume | | CFM | 1706 | 2118 | 2118 |
| | | m ³ /h | 2900 | 3600 | 3600 |
| Noise Level | Sound Pressure Noise Level | dB(A) | 56 | 56 | 56 |
| | Sound Power Noise Level | dB(A) | 65 | 65 | 65 |
| Dimension | Net Dimension (W*D*H) | mm | 822×302×655 | 822×302×655 | 822×302×655 |
| | Packing Dimension (W*D*H) | mm | 945×430×725 | 945×430×725 | 945×430×725 |
| Weight | Net | kg | 42 | 52 | 52 |
| | Gross | kg | 45 | 55 | 55 |
| Refrigerant type/Quantity | Type | | R410a | R410a | R410a |
| | Charged Volume | kg | 1.3 | 1.6 | 1.6 |
| Piping | Liquid Side | mm(inc h) | 2×6.35(1/4) | 3×6.35(1/4) | 3×6.35(1/4) |
| | Gas Side | mm(inc h) | 2×9.52(3/8) | 3×9.52(3/8) | 3×9.52(3/8) |
| | Max. Length (Each) | m | 15 | 15 | 15 |
| | Max. Height | m | 10 | 10 | 10 |
| Ambient Temp (Cooling/Heating) | | °C | -10~52°C/-15~24°C | -10~52°C/-15~24°C | -10~52°C/-15~24°C |
| Stuffing Quantity | 20/40/40H | unit | 102/210/280 | 102/210/210 | 102/210/210 |

| DC INVERTER | Model | | AM4-H36/4DR1 | AM5-H42/4DR1 |
|---------------|---------------------------------|-----------|-------------------|--------------------|
| System Format | | | 1 drive 4 | 1 drive 5 |
| Capacity | Cooling | Btu/h | 35826(8560~37600) | 40944(9450~43150) |
| | | kW | 10.5(2.5~11.0) | 12(2.77~12.7) |
| | Heating | Btu/h | 37532(9100~38120) | 44356(10100~44800) |
| | | kW | 11(2.67~11.2) | 13(2.96~12.8) |
| Electric Data | Power Supply | V~,Hz, Ph | 220~240,50,1 | 220~240,50,1 |
| | Cooling Power Input | W | 3200 | 3600 |
| | Heating Power Input | W | 3250 | 3650 |
| | Rated Current (cooling&heating) | A | 14.5/15.0 | 16/16.5 |
| Performance | SEER/SCOP | W/W | 5.93/4.17 | 6.02/4.28 |

| | | | | |
|-------------------------------------|------------------------------------|-------------------|-------------------------------|-------------------------------|
| DC Inv.Compressor | Energy Rate | | A+/A+ | A+/A+ |
| | Model | | QXAS-D32zX090B | QXAS-D32zX090B |
| | Quantity | | 1 | 1 |
| | Type | | Birotory DC Inverter | Birotory DC Inverter |
| | Brand | | LANDA | LANDA |
| | Capacity | W | 10060 | 10060 |
| | Input | W | 3360 | 3360 |
| | Power Supply | V~,Hz, Ph | 220~240,50,1 | 220~240,50,1 |
| | Rated Current | A | 6.7 | 6.7 |
| | Operating Frequency | Hz | 60 | 60 |
| | Frequency Range | | 12~120 S ⁻¹ | 12~120 S ⁻¹ |
| | Refrigerant Oil | ml | 950(VG74) | 950(VG74) |
| Outdoor DC Inverter Fan Motor | Model | | CW85C CW85D | CW85C CW85D |
| | Type | | AC | AC |
| | Brand | | Xinjun | Xinjun |
| | Quantities | | 2 | 2 |
| | Insulation Class | | B | B |
| | Safe Class | | IP44 | IP44 |
| | Input Power | W | 142×2 | 141×2 |
| | Output Power | W | 85×2 | 85×2 |
| | Capacitor | uF | 4×2uF | 4×2uF |
| | Speed | r/min | 860/710/570 | 860/710/570 |
| Outdoor Fan | Material | | Plastic | Plastic |
| | Diameter | mm | φ528×165 | φ528×165 |
| | Fan Quantity | | 2 | 2 |
| Outdoor Coil | a.Number Of Row | | 1.5 | 1.5 |
| | b.Tube Pitch(a)x Row Pitch(b) | mm | 22×19.05 | 22×19.05 |
| | c.Fin Pitch | mm | 1.6 | 1.6 |
| | d.Fin Material | | Hydrophilic aluminum fin | Hydrophilic aluminum fin |
| | e.Tube Outside Dia.And Material | mm | φ7.94, Inner grooved | φ7.94, Inner grooved |
| | f.Coil Length x Height x Width | mm | 954×1320×19.05+400×1320×19.05 | 954×1320×19.05+400×1320×19.05 |
| | g.Heat Exchanging Area | m ² | 27.42 | 27.42 |
| Air Flow Volume | | CFM | 3765 | 3765 |
| | | m ³ /h | 6400 | 6400 |
| Noise Level | Sound Pressure Noise Level | dB(A) | 57 | 57 |
| | Sound Power Noise Level | dB(A) | 65 | 65 |

AUX DC Inverter Free Match 50HZ R410A

Free Match outdoor unit

| | | | | |
|--------------------------------|---------------------------|-----------|-------------------|-------------------|
| Dimension | Net Dimension (W*D*H) | mm | 940×368×1366 | 940×368×1366 |
| | Packing Dimension (W*D*H) | mm | 1080×460×1500 | 1080×460×1500 |
| Weight | Net | kg | 96 | 97 |
| | Gross | kg | 109 | 110 |
| Refrigerant type/Quantity | Type | | R410a | R410a |
| | Charged Volume | kg | 3.4 | 3.4 |
| Piping | Liquid Side | mm(inc h) | 4×6.35(1/4) | 5×6.35(1/4) |
| | Gas Side | mm(inc h) | 4×9.52(3/8) | 5×9.52(3/8) |
| | Max. Length(Each) | m | 15 | 15 |
| | Max. Height | m | 10 | 10 |
| Ambient Temp (Cooling/Heating) | | °C | -10~52°C/-15~24°C | -10~52°C/-15~24°C |
| Stuffing Quantity | 20/40/40H | unit | 27/55/55 | 27/55/55 |

Note:

- Cooling capacity test Condition:(27°CDB,19°CWB Indoor/35°CDB,24°CWB Outdoor); Heating capacity test Condition:(20°CDB Indoor/7°CDB,6°CWB Outdoor); connecting pipe length: 5M.
- Datas may be changed with unit improvement. We keep the right to change the datas or specifications without prior notice, please follow the datas listed on the nameplate.

3. Capacity Amendment

3.1 Running range

| | | | | | | |
|--------------------------|---------|----------------|-------|-------|-------|-------|
| Cooling capacity (Btu/h) | | 18000 | 24000 | 27000 | 36000 | 42000 |
| Power supply | | 220-240V~/50Hz | | | | |
| Voltage | | 187~253V | | | | |
| Ambient temperature | Cooling | -10~52℃ | | | | |
| | Heating | -15~24℃ | | | | |

3.2 Amendment coefficient of cooling capacity under different indoor/outdoor temperature K1

| Indoor temperature(℃) | | Outdoor temperature(DB) | | | | | |
|-----------------------|----|-------------------------|------|------|------|------|------|
| DB | WB | 25 | 30 | 35 | 40 | 45 | 50 |
| 22 | 15 | 0.97 | 0.92 | 0.87 | 0.96 | 0.77 | 0.75 |
| 24 | 17 | 1.03 | 0.98 | 0.94 | 0.89 | 0.84 | 0.80 |
| 27 | 19 | 1.10 | 1.05 | 1 | 0.95 | 0.90 | 0.86 |
| 29 | 21 | 1.16 | 1.11 | 1.06 | 1.02 | 0.96 | 0.91 |
| 32 | 23 | 1.22 | 1.17 | 1.13 | 1.08 | 1.02 | 0.98 |

Actual cooling capacity calculation:

Actual cooling capacity=amendment coefficient of cooling capacity × nominal cooling capacity

——nominal cooling capacity could be found from the performance parameters list

——amendment coefficient of cooling capacity could be found from table above.

3.3 Amendment coefficient of heating capacity under different indoor/outdoor temperature K2

| Outdoor temperature(℃) | | Indoor room temperature(℃) | | |
|------------------------|-----|----------------------------|------|------|
| DB | WB | 15 | 20 | 25 |
| -15 | -16 | 0.64 | 0.59 | 0.55 |
| -10 | -12 | 0.71 | 0.66 | 0.62 |
| -7 | -8 | 0.76 | 0.72 | 0.67 |
| -1 | -2 | 0.79 | 0.74 | 0.70 |
| 2 | 1 | 0.81 | 0.76 | 0.72 |
| 7 | 6 | 1.04 | 1 | 0.96 |
| 10 | 9 | 1.10 | 1.06 | 1.01 |
| 15 | 12 | 1.16 | 1.12 | 1.07 |

Actual heating capacity calculation:

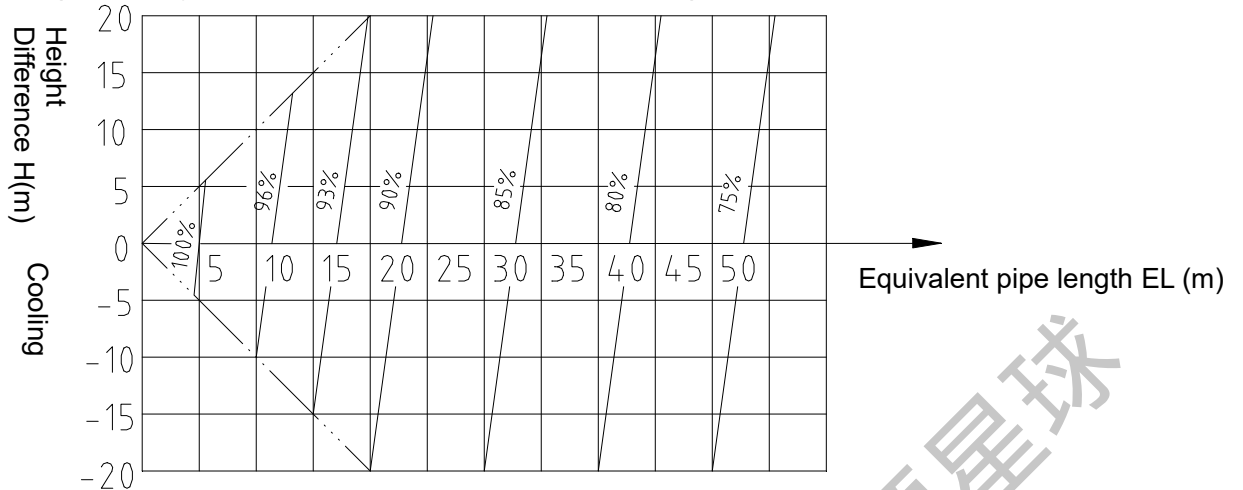
Actual heating capacity=amendment coefficient of heating capacity × nominal heating capacity

——nominal heating capacity could be found from the performance parameters list

——amendment coefficient of heating capacity could be found from table above.

3.4 Amendment coefficients of heating and cooling capacity under different height drop K3

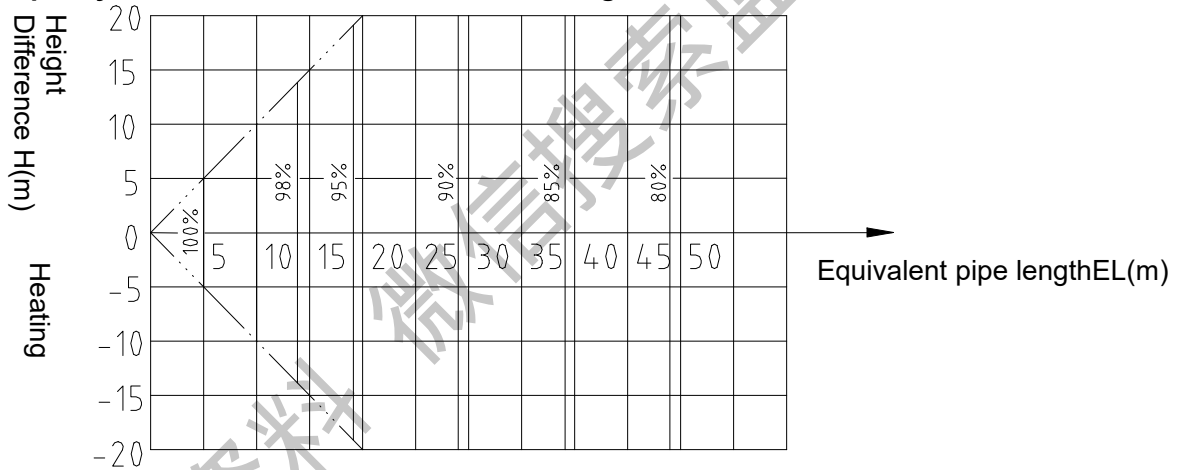
Different Cooling Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit - Height of Indoor Unit

Different Heating Capacity modified coefficients at different height:



Note:

H = Height of Outdoor Unit - Height of Indoor Unit

3.5 Correction capability

Cooling capacity = nominal cooling capacity xK1xK3

Heating capacity = nominal heating capacity xK2xK3

3.6 Equivalent Pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Bend and Oil Loop Conversion tablet

| Pipe Dia.(mm) | Type | Bend | Oil Loop |
|---------------|------|------|----------|
| 6.35 | | 0.10 | 0.7 |
| 9.52 | | 0.18 | 1.3 |
| 12.70 | | 0.20 | 1.5 |
| 15.88 | | 0.25 | 2.0 |
| 19.05 | | 0.35 | 2.4 |
| 22.02 | | 0.40 | 3.0 |

Equivalent Pipe length $L = \text{Actual Pipe length} + \text{Bend Qty} \times \text{Equivalent pipe bend length} + \text{Oil Loop Qty} \times \text{Equivalent Oil Loop length}$

Sample:

AM2-H18/4DR1A Actual Pipe length is 25 meters, Gas pipe diameter is 9.52mm. If there's 5 bends and 2 oil loops during the installation, then the equivalent pipe length should be:

$$L = 25 + 0.18 \times 5 + 1.3 \times 2 = 28.5(\text{m})$$

◇ Specification of Connection Pipe for Indoor Unit and Outdoor Unit

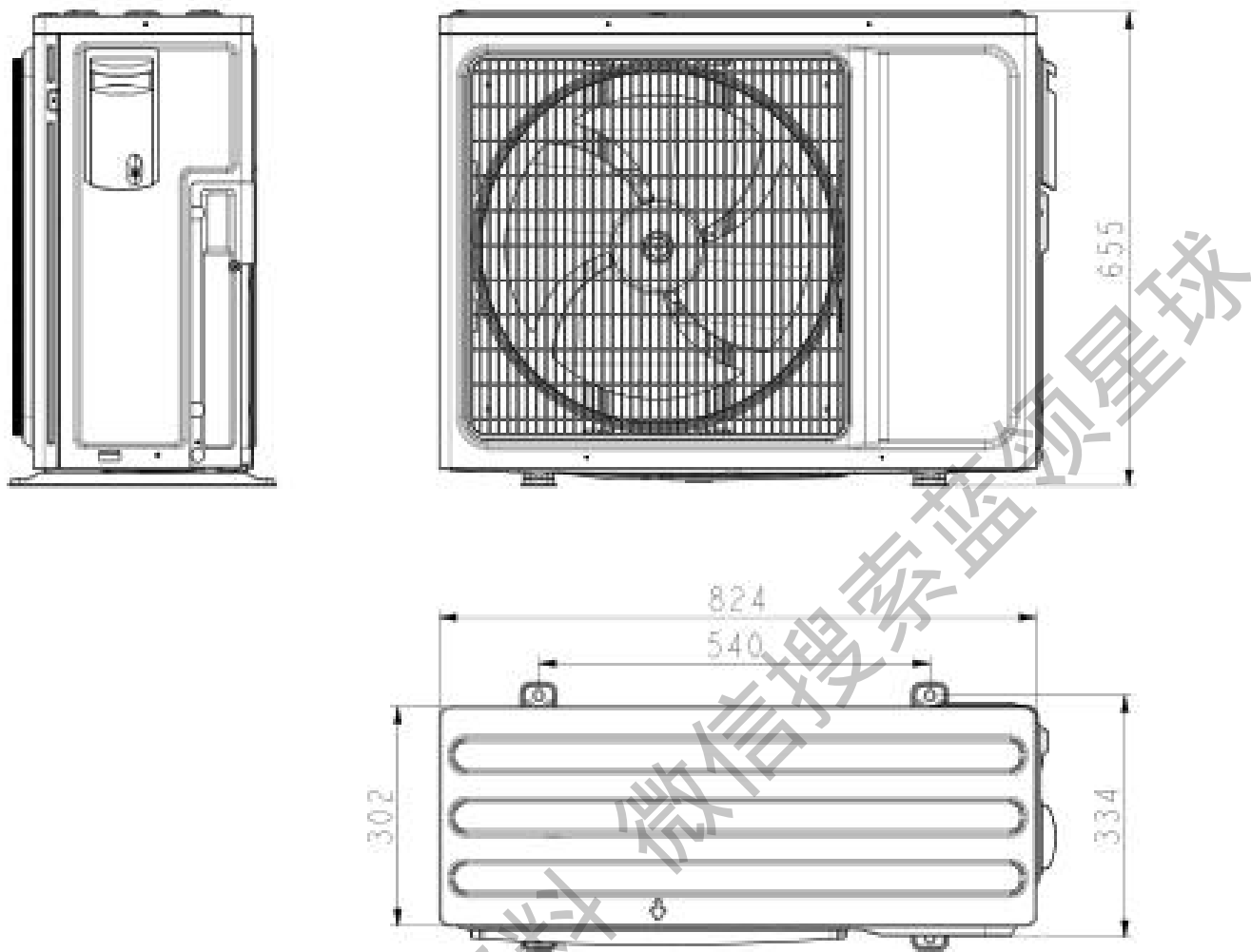
| Cooling Capacity(Btu/h) | | 18000 | 24000 | 27000 | 36000 | 42000 |
|--|-------------|-------|-------|-------|-------|-------|
| Connection Pipe (mm) | Liquid Pipe | Φ6.35 | | | | |
| | Gas Pipe | Φ9.52 | | | | |
| Max. Length(Each) | | 15 | | | | |
| Max. Height (m) | | 10 | | | | |
| Max. Bend Qty | | 5 | | | | |
| Extra R410a per meter when the pipe length is more than 5 meter (kg) | | 0.022 | | | | |

Caution:

1. The standard Pipe length is 5m, if the pipe length is less than this then no additional charging is necessary. If the pipe length is more than this then you should charge more refrigerant into the system according to the above Charging Data
2. The thickness of the pipe is 0.6-1.0, bearing pressure is 4.2MPa;
3. If the connection pipe is too long, the cooling capacity and stability would be decreased. And the more bend quantity, the resistance in the piping system would be bigger, then the cooling and heating capacity would be decreased even lead to compressor broken. We suggest you to use the shortest connection pipe according to the pipe length parameter in this manual. If the height difference between outdoor and indoor unit is more than 5m, an oil trap should be installed in the gas pipe for every 10 meters.

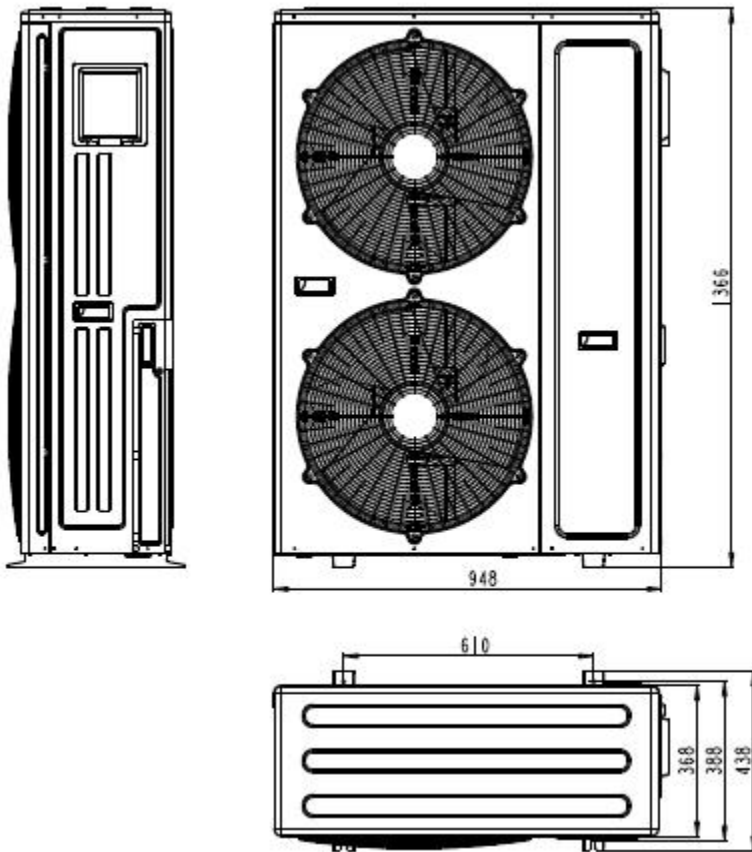
4. Dimension

AM2-H18/4DR1A、AM3-H24/4DR1A、AM3-H27/4DR1A



AM4-H36/4DR1, AM5-H42/4DR1

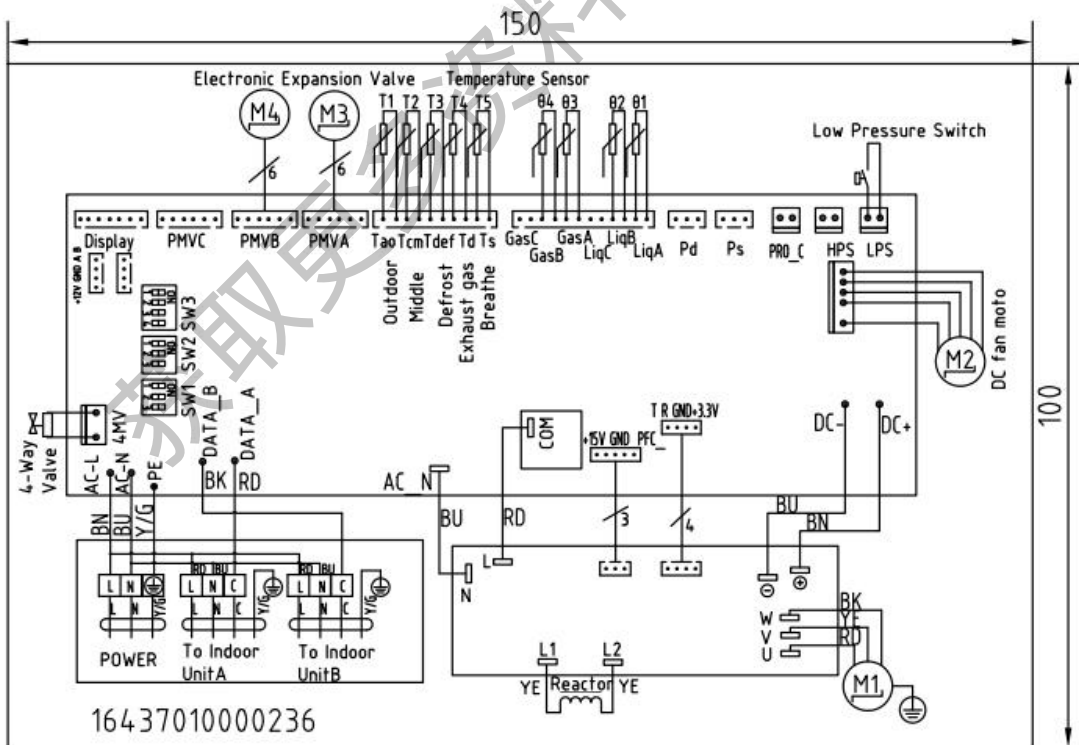
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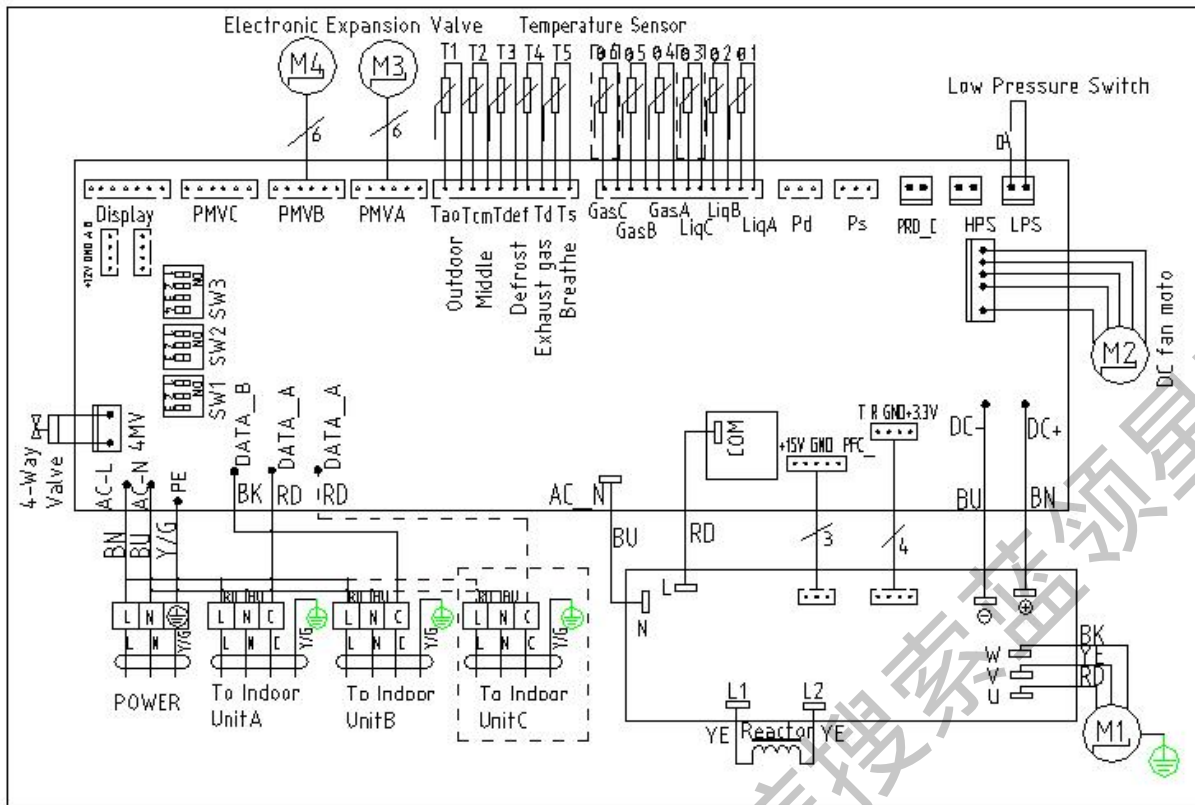
5. Electrical Diagram and connection

Electrical Diagram

AM2-H18/4DR1A

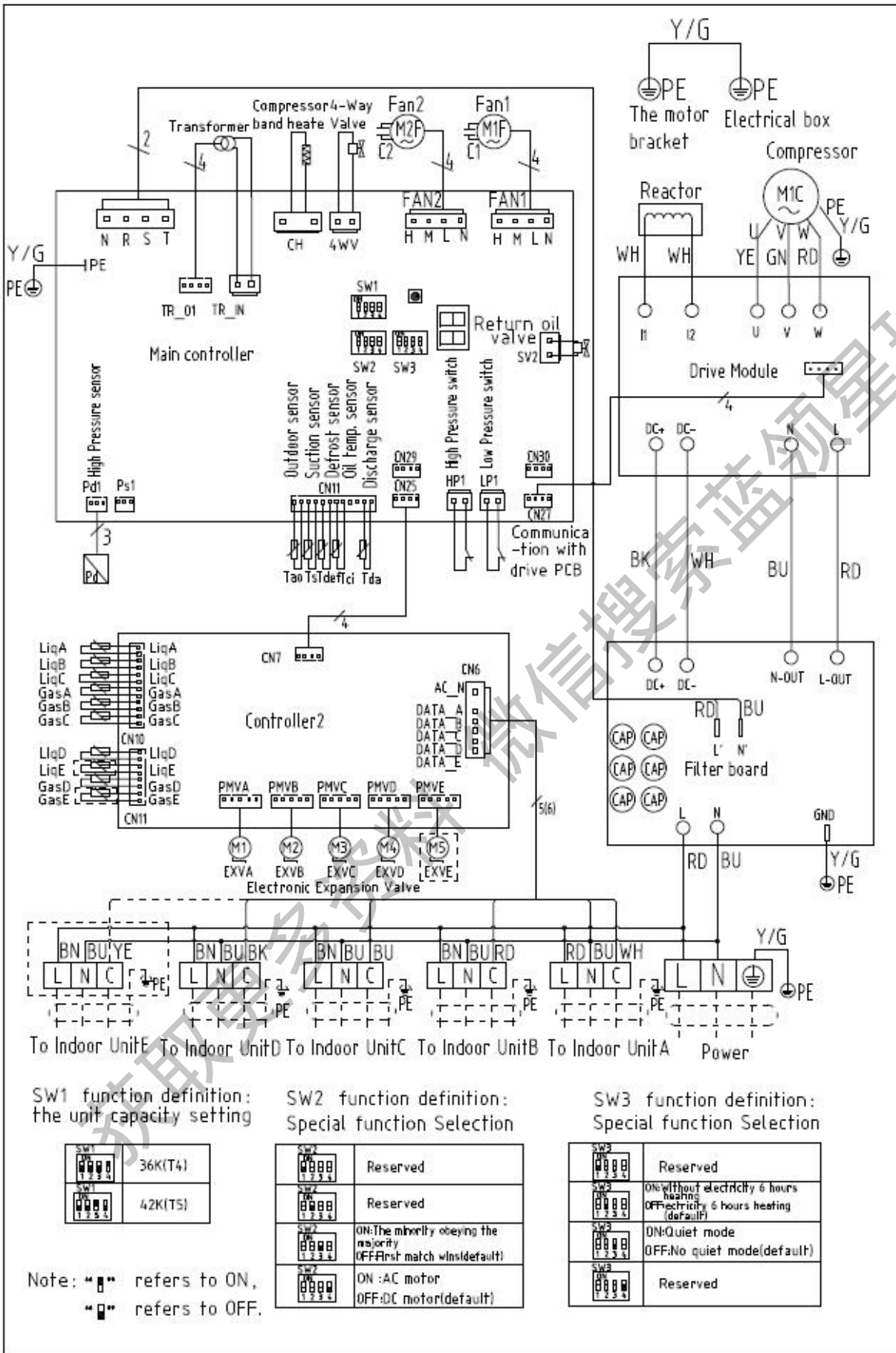


AM3-H24/4DR1A、AM3-H27/4DR1A



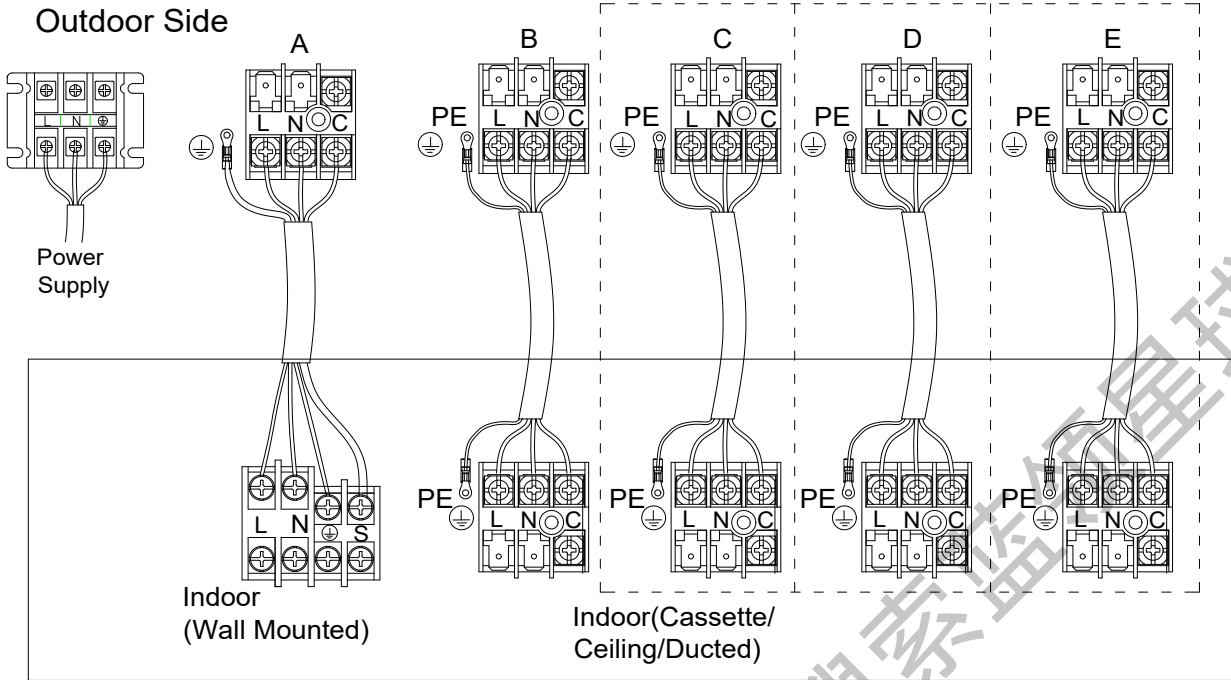
AM4-H36/4DR1 AM5-H42/4DR1

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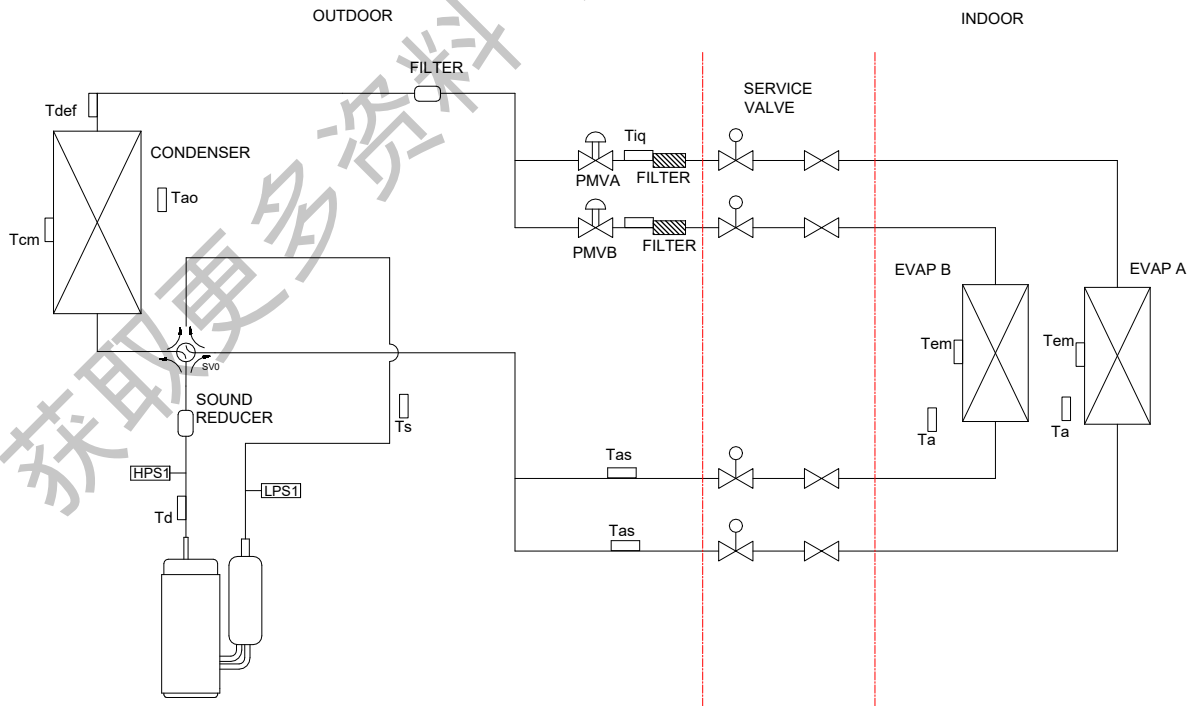
Electrical Wiring Connection

AM2-H18/4DR1AM3-H24/4DR1A AM3-H27/4DR1A AM4-H36/4DR1 AM5-H42/4DR1

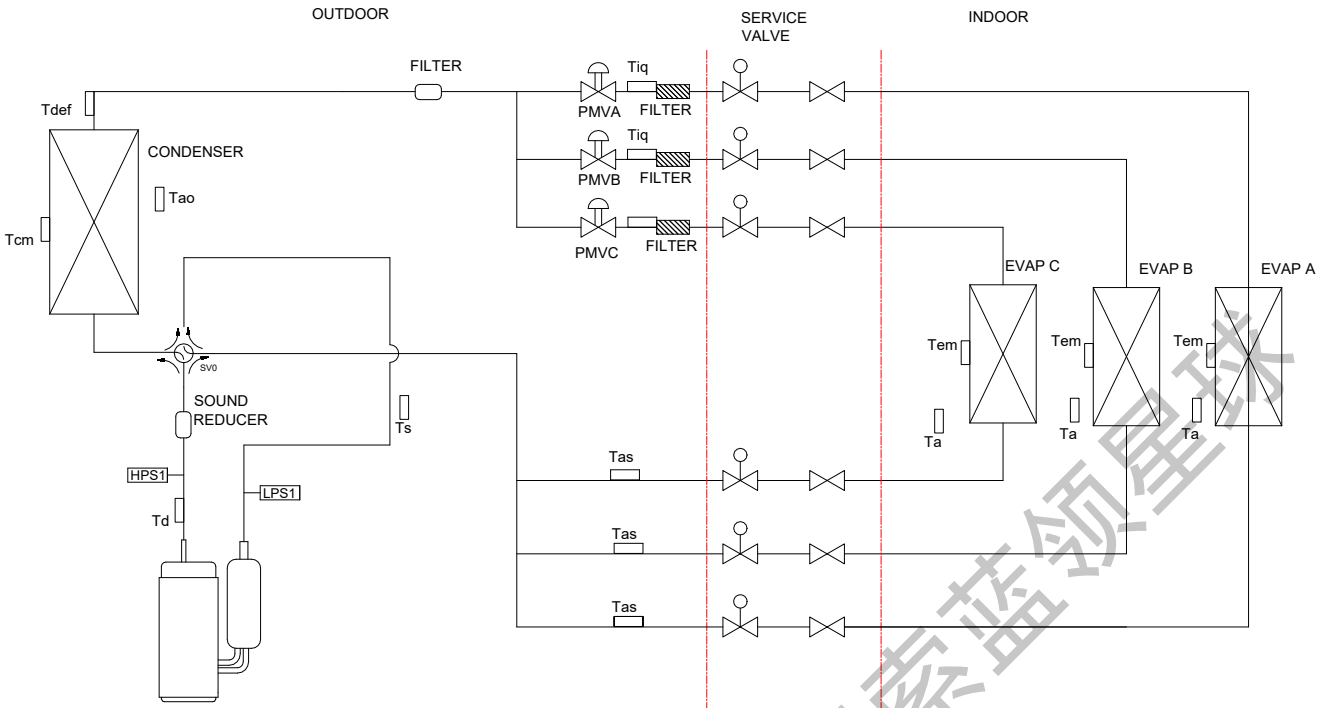


6. System Diagram

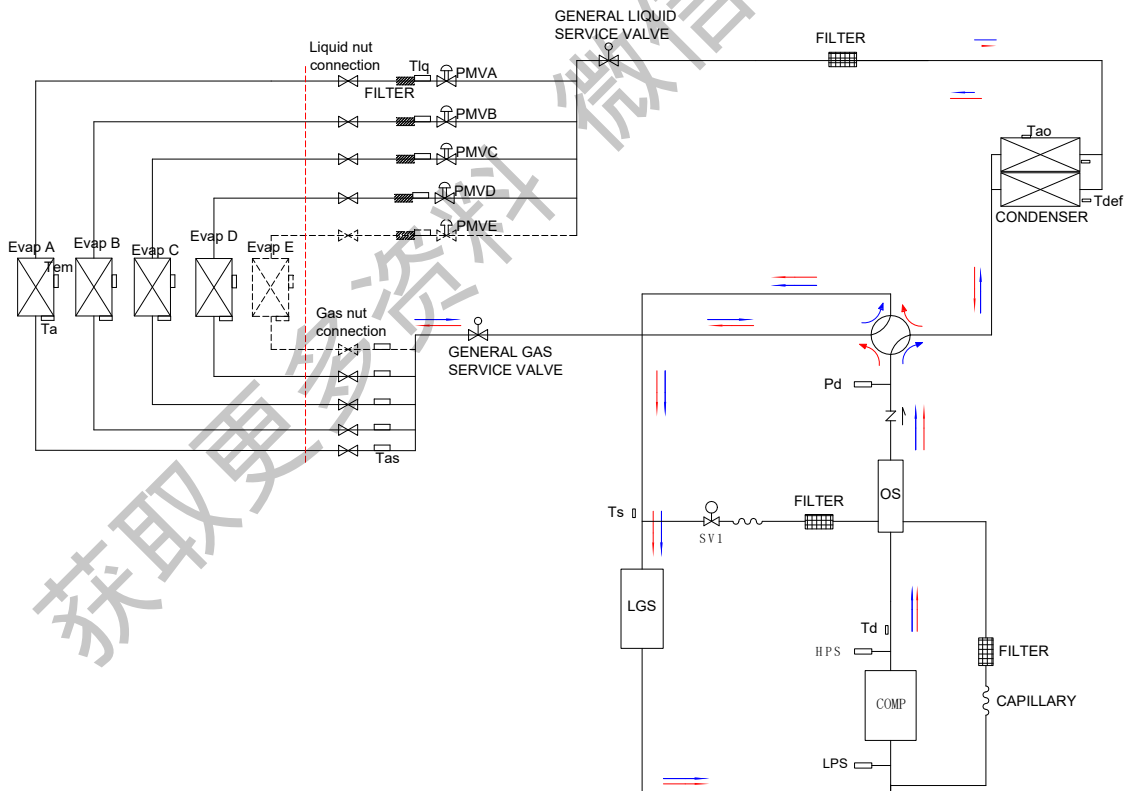
AM2-H18/4DR1A



AM3-H24/4DR1AM3-H27/4DR1A

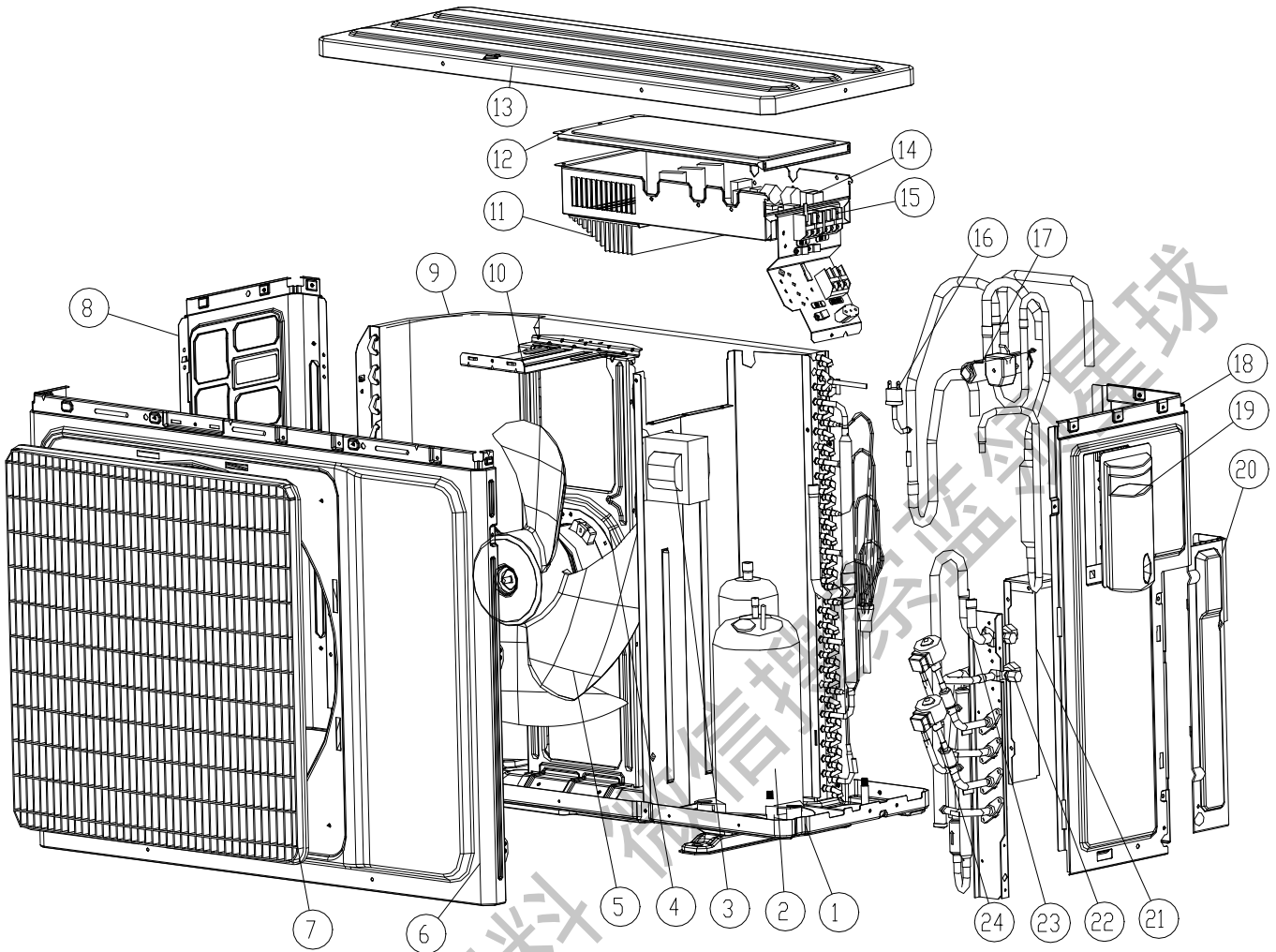


AM4-H36/4DR1 AM5-H42/4DR1



7. Exploded View

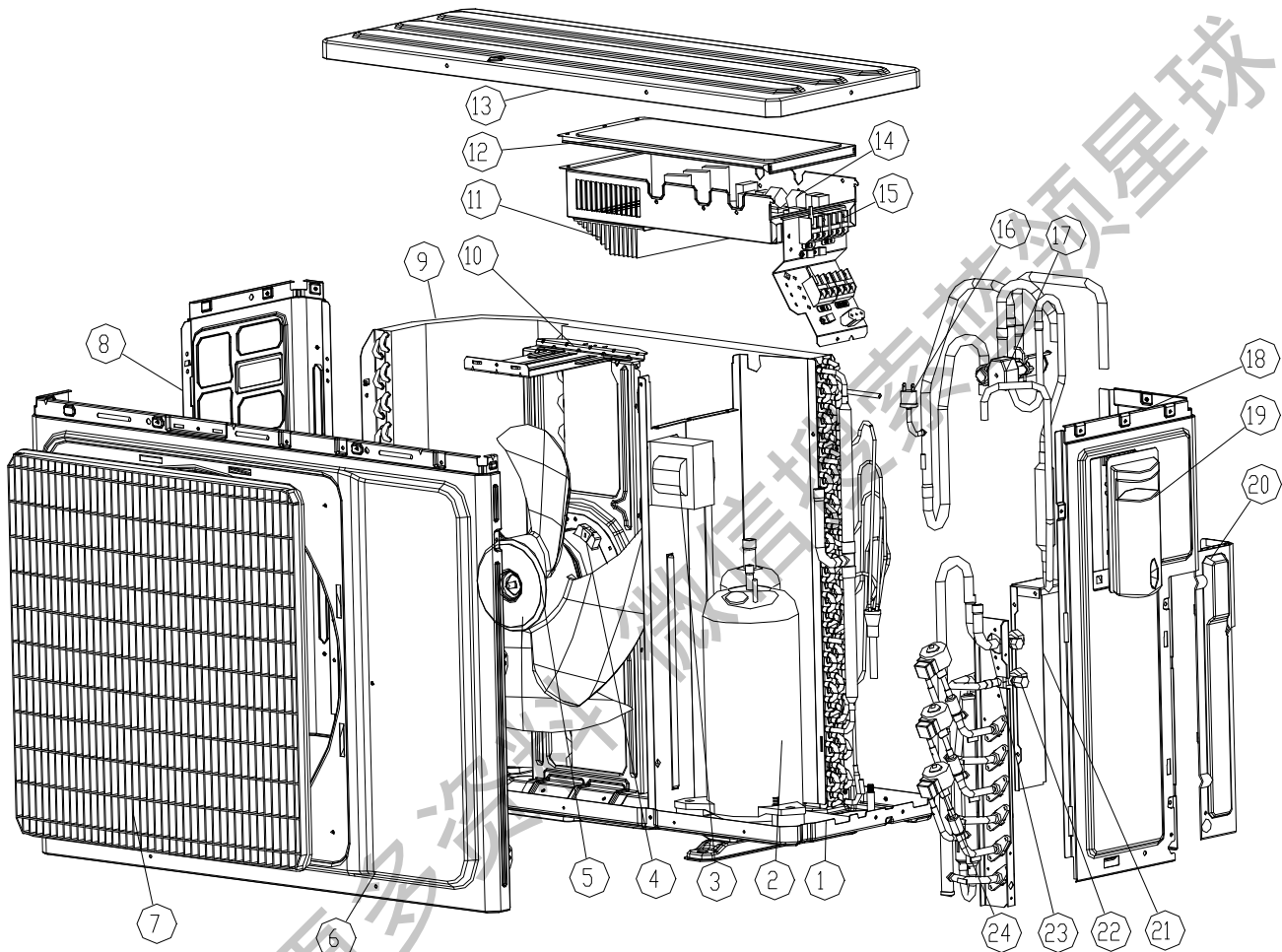
AM2-H18/4DR1A



| No. | Part code | Part name | Qty/Per | Remarks |
|-----|----------------|------------------------|---------|---------------|
| 1 | 16321002000140 | Btm pan asm | 1 | |
| 2 | 16438003000031 | Compressor | 1 | DA150S1C-20KZ |
| 3 | 11330034000012 | Resistor | 1 | DK20-5d2-50 |
| 4 | 16430001000619 | Fan motor | 1 | CW70B-ZL |
| 5 | 11320009000057 | Fan blade | 1 | 470*140 |
| 6 | 16421004000355 | Dec front panel | 1 | |
| 7 | 11320026000052 | Grille front panel | 1 | |
| 8 | 16421001000736 | Left side panel | 1 | |
| 9 | 16324002000091 | Condenser asm | 1 | |
| 10 | 11321002000036 | Motor bracket | 1 | |
| 11 | 11222543000004 | Driving PCB compressor | 1 | |
| 12 | 11321020000002 | Control box cover | 1 | |
| 13 | 11321009000052 | Top cover | 1 | |
| 14 | 11222031000382 | Main PCB | 1 | |
| 15 | 16427001000064 | Terminal block | 3 | |
| 16 | 16442024000005 | Low pressure switch | 1 | |
| 17 | 11225509000069 | 4-way valve | 1 | |

| | | | | |
|----|----------------|--------------------|---|------------------|
| 18 | 16421001000739 | Right side panel | 1 | |
| 19 | 11320068000009 | Electrical cover | 1 | |
| 20 | 16420014000034 | Check valve cover | 1 | |
| 21 | 16421001000738 | Back side panel | 1 | |
| 22 | 16441004000074 | Serve valve 3/8" | 1 | |
| 23 | 16441004000096 | Service valve 1/2" | 1 | |
| 24 | 16441014000030 | E-expensive valve | 2 | DPF(Q)1.5(R410a) |

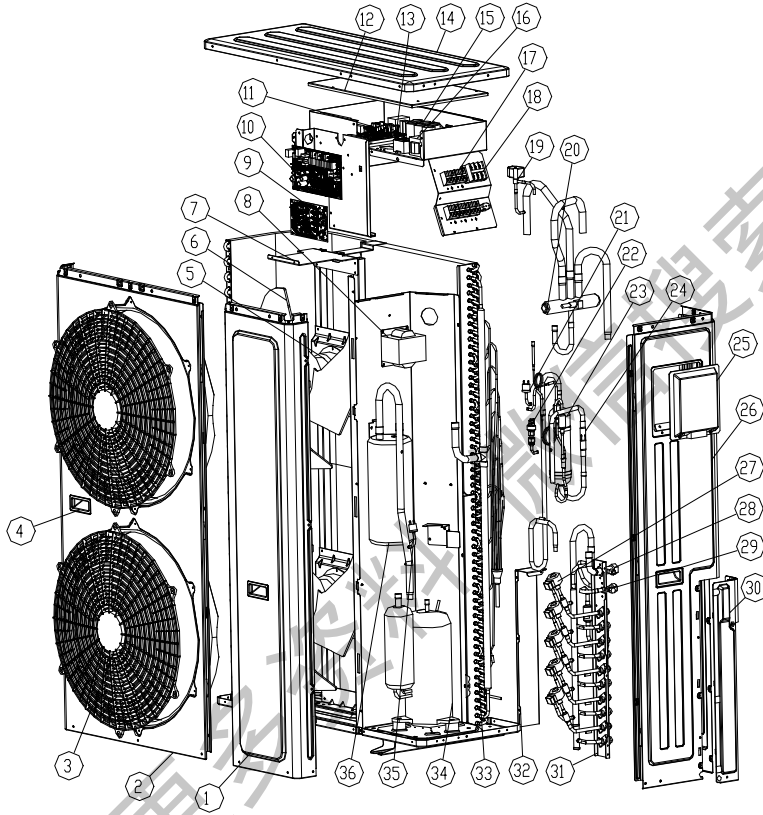
AM3-H24/4DR1A AM3-H27/4DR1A



| No. | Part code | Part name | Qty/Per | Remarks |
|-----|----------------|------------------------|---------|---------------|
| 1 | 16321002000141 | Btm pan asm | 1 | |
| 2 | 11223003000019 | Compressor | 1 | DA250S2C-30MT |
| 3 | 11330034000016 | Resistor | 1 | DK25-5-50 |
| 4 | 16430001000619 | Fan motor | 1 | CW70B-ZL |
| 5 | 11320009000057 | Fan blade | 1 | 470*140 |
| 6 | 16421004000355 | Dec front panel | 1 | |
| 7 | 11320026000052 | Grille front panel | 1 | |
| 8 | 16421001000736 | Left side panel | 1 | |
| 9 | 16324002000092 | Condenser asm | 1 | |
| 10 | 11321002000036 | Motor bracket | 1 | |
| 11 | 11222030000007 | Driving PCB compressor | 1 | |
| 12 | 11321020000002 | Control box cover | 1 | |

| | | | | |
|----|----------------|---------------------|---|------------------|
| 13 | 11321009000052 | Top cover | 1 | |
| 14 | 11222542000009 | Main PCB | 1 | |
| 15 | 16427001000064 | Terminal block | 4 | |
| 16 | 16442024000005 | Low pressure switch | 1 | |
| 17 | 11225509000069 | 4-way valve | 1 | |
| 18 | 16421001000739 | Right side panel | 1 | |
| 19 | 11320068000009 | Electrical cover | 1 | |
| 20 | 16420014000034 | Check valve cover | 1 | |
| 21 | 16421001000738 | Back side panel | 1 | |
| 22 | 16441004000074 | Serve valve 3/8" | 1 | |
| 23 | 16441004000096 | Service valve 1/2" | 1 | |
| 24 | 16441014000030 | E-expensive valve | 3 | DPF(Q)1.5(R410a) |

AM4-H36/4DR1 AM5-H42/4DR1



| NO. | Material code | Part name | Qty | remarks |
|-----|----------------|-------------------|-----|-------------|
| 1 | 16421004000023 | Front panel small | 1 | |
| 2 | 16421004000226 | Front panel big | 1 | |
| 3 | 16420020000025 | Plastic grille | 2 | |
| 4 | 11320097000003 | Handle | 3 | |
| 5 | 16430001000624 | Fan motor | 2 | CW85C、CW85D |
| 6 | 11320009000052 | Fan blade | 2 | 528*165 |
| 7 | 16421026000016 | Motor bracket | 1 | |
| 8 | 16430013000007 | Resistor | 1 | DK-5mH-30A |
| 9 | 11222544000008 | Pcb extension | 1 | |
| 10 | 11222542000061 | Main pcb | 1 | |
| 11 | 16422012000027 | Driving pcb comp | 1 | |

| | | | | |
|----|----------------|----------------------|--------|-----------------------|
| 12 | 16421038000288 | Control box cover | 1 | |
| 13 | 11330010000057 | Fan capacitor | 2 | 4.0μF/450VAC/70/2000h |
| 14 | 16421005000028 | Top cover | 1 | |
| 15 | 16422007000004 | Capacitor board | 1 | |
| 16 | 16422005000008 | Transformer | 1 | |
| 17 | 16427001000064 | Terminal block 3p | 4 or 5 | |
| 18 | 16427001000020 | Terminal block power | 1 | |
| 19 | 16441012000039 | Magnetism valve | 1 | |
| 20 | 11225509000067 | 4-way valve | 1 | |
| 21 | 16442024000006 | High pressure switch | 1 | 4.2/3.3 |
| 22 | 16442026000006 | High pressure sensor | 1 | 2HMP6-5 L=600 |
| 23 | 16442021000020 | Oil seperator | 1 | VR160WH |
| 24 | 16441003000020 | Check valve | 1 | |
| 25 | 16421038000288 | Electrical cover | 1 | |
| 26 | 16421001000701 | Right side panel | 1 | |
| 27 | 16441014000030 | E-exp valve | 4 or 5 | DPF(Q)1.5(R410a) |
| 28 | 16441004000088 | Service valve 5/8" | 1 | |
| 29 | 16441004000074 | Service valve 3/8" | 1 | |
| 30 | 16420014000033 | Service valve cover | 1 | |
| 31 | 11320015000073 | Valve bracket | 1 | |
| 32 | 16421001000684 | Back side panel | 1 | |
| 33 | 16324002000078 | Cond asm | | |
| 34 | 16438003000036 | Compressor | 1 | QXAS-D32zX090B |
| 35 | 16442024000005 | Low pressure switch | 1 | 0.3/0.1 |
| 36 | 16421016000077 | Middle panel | 1 | |

8. Installation

8.1 Preparation and equipments before installation

| | |
|----|--|
| 1 | Please buy following spare parts from your local market before installation |
| 2 | Hung bolts M12, 4 pcs |
| 3 | Drainage pipe PVC |
| 4 | Copper connecting pipe |
| 5 | Adhesive belt (big size) 5 pcs, (small size) 5 pcs |
| 6 | Heat insulation material used to connect copper pipe (PE foam material, its thickness is more than 8mm) |
| 7 | Power cable, electrical wire between indoor and outdoor unit(Must be in accordance with the wire diameter in the wiring diagram) |
| 8 | Acetylene cylinders, oxygen cylinders (when longer pipe used it should be welded) |
| 9 | One set pipe cut machine. (cut copper pipe) |
| 10 | Refrigerant cans, electronic balance (when longer pipe used additional gas should be charged) |
| 11 | Pressure gauges, pipe clamp, welding torch, 2B silver electrode |
| 12 | Wrench 2 pcs, one of them is with adjustable torque wrench(42N.m,65N.m,100N.mm) |
| 13 | Nitrogen cylinder (in order to prevent oxidation when welding, using Nitrogen to replace the air) |

Select installation position of outdoor unit

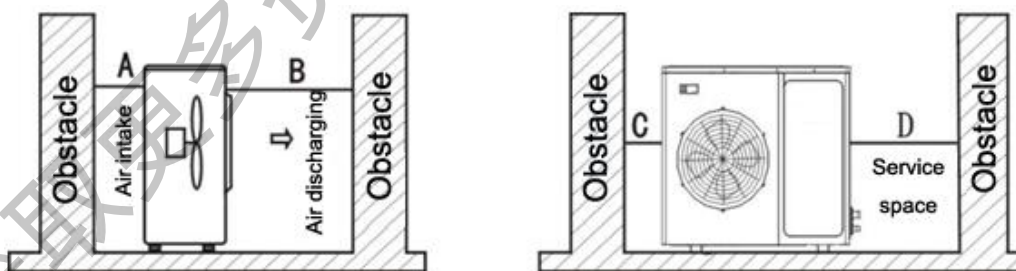
- ◇ The site shall be strong enough to bear its weight, prevent noise and vibration.
- ◇ The site shall be ensured to avoid direct sunshine, if necessary set a Havelock above the outdoor unit.
- ◇ The site shall be easy to drainage the rain water and the frost water.
- ◇ The site shall be ensured that the outdoor unit will not be covered by snow LDring the winter season.
- ◇ The site shall be ensured that the outlet is not facing the strong wind.
- ◇ The site shall be ensured that outlet air and operation noise will not affect the neighbors' daily life.
- ◇ The site shall be ensured that the outdoor unit will not be affected by the garbage and oil mist.

Warning :

If outdoor unit working under such environment which contains oil (including machine oil) salt(marine areas), sulfide gas (hot springs and oil refinery areas), those substance may lead to the failure work of the outdoor unit.

Maintenance and ventilation space

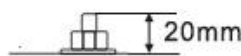
- ◇ The site shall be easy for ventilation then the outdoor unit can inhale and discharge air easily. What's more please reserve enough space for maintenance.



Note: Require $A > 300\text{mm}$; $B > 1500\text{mm}$; $C > 300\text{mm}$; $D > 500\text{mm}$;

Outdoor unit installation

- ◇ Use size M10 bolt and nut to fasten the outdoor unit tightly on the bracket, keep it in the horizontal level. The suitable length for bolt shall 20mm over the base level, in order to minimize vibration please do set a rubber shock absorber.



- ◇ If the outdoor unit is mounted on the wall or on the rooftop, in order to prevent earthquake and strong wind please fasten it as tightly as possible.
- ◇ Set a drainage channel to ensure the condensing water can drain out smoothly.

◇ Avoid that only four angles metal sheet to support the outdoor unit.

Transport

When the outdoor unit is to be lifted, please use two slings longer than 8m and insert cushioning material between the slings and outdoor unit to avoid damaging the casing.

8.2 Connection piping installation

Piping installation precaution

Please choose copper pipe as the piping.

◇ If the piping installation needs welding:

Please welding before fasten the nut, when welding using nitrogen gas to replace the air in the pipe in order to prevent oxidation.

◇ If there are many points to be welded ,please set a filter in the pipe(buy from local market)

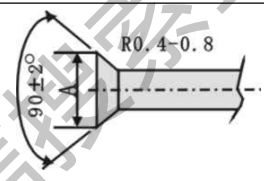
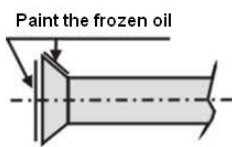
◇ Please use nitrogen gas or air to remove the dust and water in the pipe,

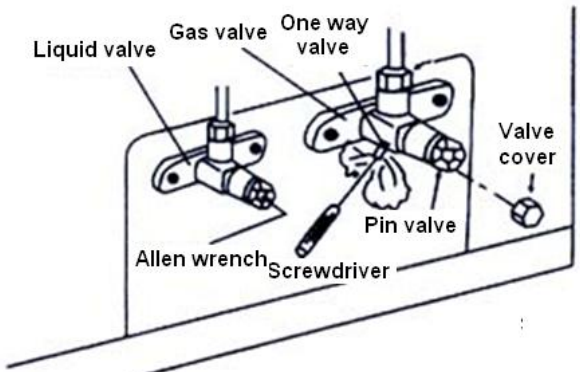
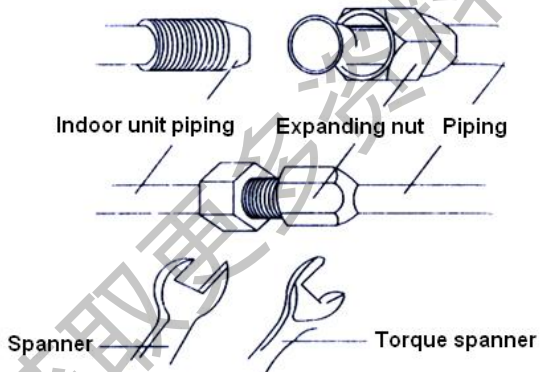
◇ Please lay out the piping according to the tend towards of the piping, but it is not allowed more than 3 times curved at the same point of the pipe(if do like this the pipe will become rigid)

◇ When using pipe bending machine, the curvature shall not be too small or it will affect the refrigerant flow.

Piping specification selection

As to the detail selection please take reference to the cooling capacity adjust index figure during different installation situations.

| Piping diameter | Tighten torque | Expanding size (A) | Expanding shape | Paint the frozen oil |
|-----------------|----------------|--------------------|---|--|
| 1/4in(φ6.35mm) | 15-19(N·m) | 8.3-8.7mm |  |  |
| 3/8in(φ9.52mm) | 35-40(N·m) | 12.0-12.4mm | | |
| 1/2in(φ12.7mm) | 50-60(N·m) | 15.4-15.8mm | | |
| 5/8in(φ15.88mm) | 62-76(N·m) | 18.6-19.0mm | | |
| 3/4in(φ19.05mm) | 70-75(N·m) | 22.9-23.3mm | | |



Piping connection

◇ Using expanding machine to expand accessories, the size of horn shown in the above figure:

◇ Paint a thin layer of frozen oil at both inside and outside part of the expanding.

◇ Make the expanding right to the screw thread shape connection of the indoor unit, using hands to tighten the nut then using a wrench to tighten the nut again.

◇ Take out the cover of the indoor unit gas valve and liquid valve, make the expanding right to the stop valve of outdoor unit, using hands to tighten the nut then using a wrench to tighten the nut again.

Equivalent pipe length conversion

Equivalent pipe length means converting pipe elbow to straight pipe length after considerate the pressure loss.

Elbow and Oil loop conversion tablet

| Pipe Dia.(mm) | Type | Bend | Oil Loop |
|---------------|------|------|----------|
| 6.35 | | 0.10 | 0.7 |
| 9.52 | | 0.18 | 1.3 |
| 12.70 | | 0.20 | 1.5 |
| 15.88 | | 0.25 | 2.0 |
| 19.05 | | 0.35 | 2.4 |
| 22.02 | | 0.40 | 3.0 |

Equivalent pipe length L = Actual Pipe length L + Bend Qty × Equivalent pipe bend length + Oil Loop Qty × Equivalent Oil Loop length

Sample:

AMCA-H09/4R1A Actual Pipe length is 25 meters, Gas pipe diameter is 9.52mm. If there's 5 bends and 2 oil loops during the installation, then the equivalent pipe length should be:

$L = 25 + 0.18 \times 5 + 1.3 \times 2 = 28.5(m)$

◇ Specification of connection pipe for indoor unit and outdoor unit

| Cooling Capacity(Btu/h) | | 18000 | 24000 | 27000 | 36000 | 42000 |
|--|-------------|-------|-------|-------|-------|-------|
| Connection Pipe (mm) | Liquid Pipe | Φ6.35 | | | | |
| | Gas Pipe | Φ9.52 | | | | |
| Max. Length(Each) | | 15 | | | | |
| Max. Height (m) | | 10 | | | | |
| Max. Bend Qty | | 5 | | | | |
| Extra R410a per meter when the pipe length is more than 5 meter (kg) | | 0.022 | | | | |

Emptying or vacuum

Before charging the refrigerant to the system, to ensure that there is no impurities, water or non-condensable gas. So, emptying and vacuum operation should be carried out.

◇ Vacuum: when process this operation please be sure that the connection pipe is tightened up.

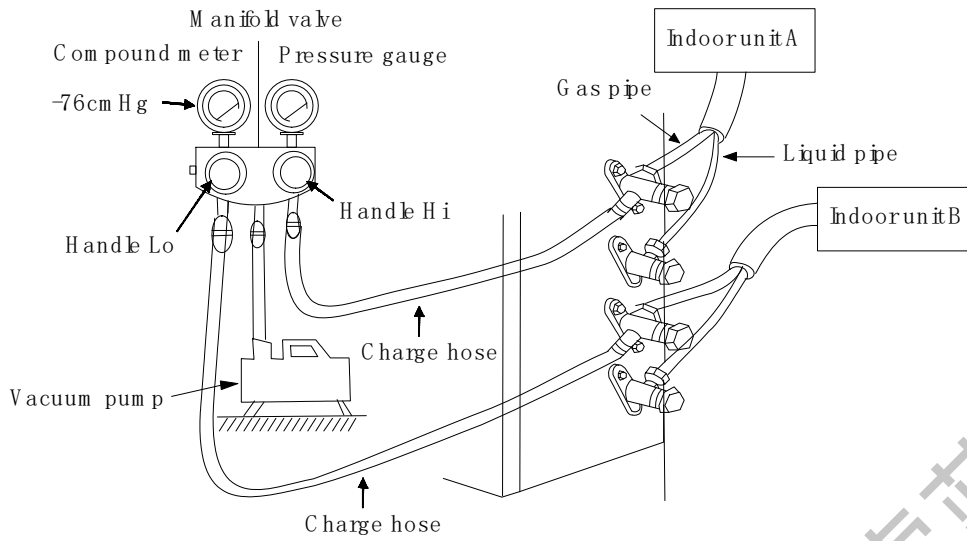
1. Screw off the cover of maintenance valve connection, connect the pressure gauge to the connection of maintenance valve
2. Connect the vacuum pump to the pressure gauge, turn on the vacuum pump and pressure gauge to process the vacuum operation toward the indoor unit and piping, while to ensure that the absolute pressure is no less than 50Pa after this operation.
3. Turn off the pressure gauge and vacuum pump to keep the pressure in the same level in 20 minutes.

◇ Emptying: when process this operation, please disconnect the high pressure valve with liquid valve.

1. Connect the gas valve of the stop valve to the thimble side of the rubber hoses, the other side of rubber hoses should be connected to the refrigerant tank.
2. Open the refrigerant tank valve, using the refrigerant inside the tank with high speed to empty the air in the indoor unit and the connection piping. When the outlet air becomes mist (it feels cold by touching it), then the air is emptied.
3. When ensure that the air is emptied, connect and tighten the high pressure valve of outdoor unit stop valve and liquid side connection pipe, keep this state more than 10 seconds.
4. Use soapy what to test each connection junctions (including lengthen piping welding junction)
5. Confirmed that there is no leakage, turn off the valve of refrigerant tank, take down the rubber hose as well.

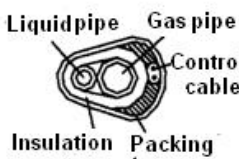
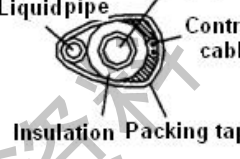
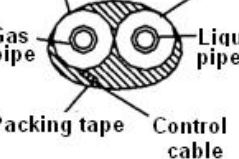
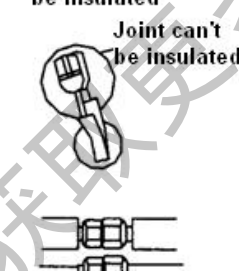
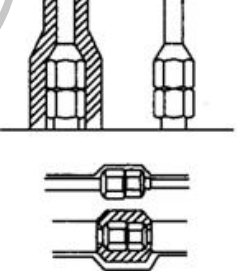
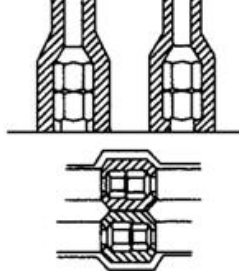
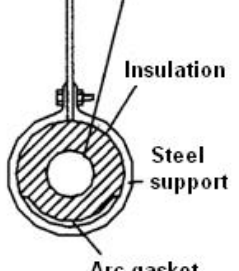
◇ Turn on the high-low pressure valve of the outdoor unit.

After vacuum and emptying, screw back the cover of the maintenance valve of outdoor unit low pressure valve, screw off the high-low pressure valve of the outdoor unit (note: shall totally turned off). Connect the refrigerant to the system.



Heat insulation package of piping

◇ Use heat insulation material with good insulation performance to wrap the pipe.

| Incorrect | Correct | | Insulation support |
|--|---|---|--|
| <ul style="list-style-type: none"> Gas pipe and liquid pipe can't be insulated together  | <ul style="list-style-type: none"> Only gas pipe insulation (Cooling-only)  | <ul style="list-style-type: none"> Gas and liquid pipe insulation  | |
| <ul style="list-style-type: none"> Piping joints should be insulated  |  |  | <ul style="list-style-type: none"> Insulation support  |

Notes

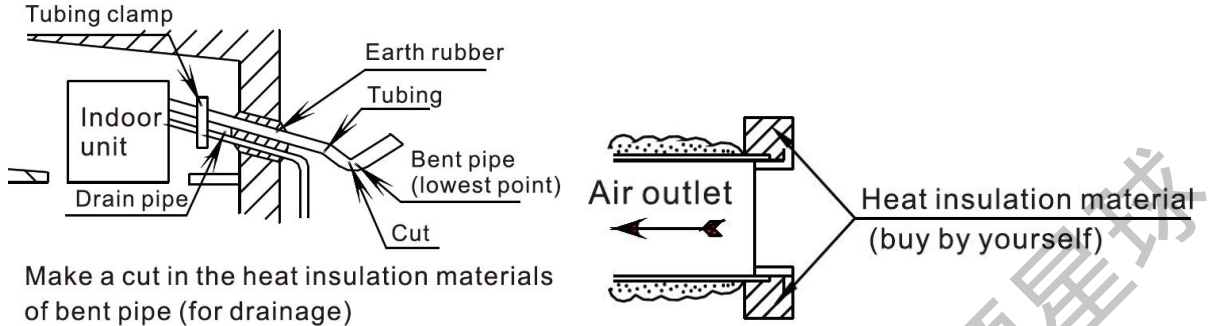
Drainage pipe and connection piping should be wrapped by heat insulation material respectively lift the air conditioner is proved my dew conditioner experiment. But if it keeps on working in high humidity (the dew temperature is more than 23°C) environment which may lead to water leakage, please use following additional insulation material:

- ◇ Glass fiber insulation material with the thickness between 10~20mm can be used.
- ◇ The part of indoor unit which get in touch with the back side of ceiling should pasted with insulation material.
- ◇ Besides the previous more than 8mm thick insulation material, connection piping (both gas pipe and liquid pipe),

drainage pipe should be wrapped by additional 10~30 mm thick insulation material.

Seal the hole on the wall.

- ◇ To prevent rainwater or other foreign bodies from entering the room and air-conditioner, the gap between wall hole and tubing, drain pipe and electric wire should be sealed with mastic, sealant rubber or putty.
- ◇ If the outdoor unit is higher than indoor unit, tubing should be bent to ensure that the lowest point of the tubing is lower than the wall hole to prevent rainwater entering the room or air-conditioner along the piping system.



Additional refrigerant charge

When pipe length exceeds 5m, please add refrigerant according to the table below:

| Connection piping | Piping size) | | Additional refrigerant charge amount (kg/m) |
|--|--------------|--------------|---|
| | Gas pipe | Liquid pipe | |
| Piping between indoor and outdoor unit | φ9.52×0.75mm | φ6.35×0.75mm | 0.022 |
| | φ12.7×1mm | φ6.35×0.75mm | 0.022 |
| | φ15.88×1mm | φ9.52×0.75mm | 0.050 |
| | φ19.05×1mm | φ9.52×0.75mm | 0.070 |
| | φ19.05×1mm | φ12.7×1mm | 0.090 |

Oil grade and standard oil-filled volume of Compressor

| Outdoor unit model | Brand | Compressor model | Oil type | Oil volume(cm ³) |
|--------------------|-------|------------------|----------|------------------------------|
| AM2-H18/4DR1A | GMCC | DA150S2C-30KZ | VG74 | 500 |
| AM3-H24/4DR1A | GMCC | DA250S2C-30MT | VG74 | 820 |
| AM3-H27/4DR1A | GMCC | DA250S2C-30MT | VG74 | 820 |
| AM4-H36/4DR1 | LANDA | QXAS-D32zX090B | VG74 | 950 |
| AM5-H42/4DR1 | LANDA | QXAS-D32zX090B | VG74 | 950 |

Others

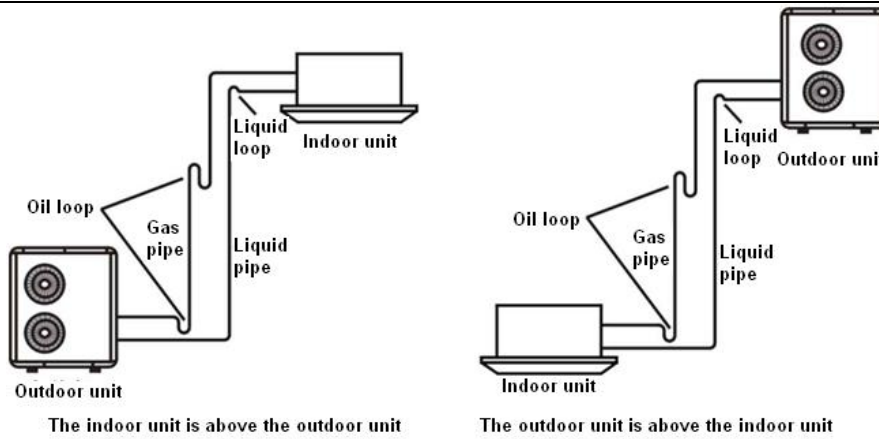
Make sure that the oil can return to the unit smoothly.

- ◇ Horizontal pipes should incline toward the outdoor unit using a 20:1 slope.
- ◇ If there is a height difference (ΔH) between the indoor and outdoor unit, oil loops should be installed in the interconnecting gas (large) pipe;

When ΔH ≤ 5 meters, an oil loop should be installed at the bottom of the gas (large) pipe; if the constant rise distance is too long, an oil loop should be installed in the gas (large) pipe every 10 meters.

When ΔH > 5 meters, then for every 5 meters an oil loop must be installed at the bottom of the gas (large) pipe, and a short loop (liquid ring) should be installed at the exit of the indoor unit liquid (small) pipe;

- ◇ When the outdoor and indoor units are at the same elevation, If the horizontal connecting pipe length is less than 10 m, the oil deposit bend and liquid ring do not need to be installed.
- If the horizontal connecting pipe length is more than 10 m, install an oil loop in the gas (large) pipe every 10 metres.



Note:
 This chart is for explanation purposes. An actual installation will differ from this according to the site conditions. When making an oil loop the radius of the bend should be between 1.5 and 2 times the pipe diameter.

8.3 Electrical connection

8.3.1 Electrical connection precaution

| | |
|---------|--|
| Warning | Installation of electric items must be carried out by qualified, professional technicians. |
| | An isolated circuitry should be fixed with whole-pole disconnection devices, which is with at least 3mm gap of touch point . Power supply and indoor to outdoor connection wire should use special cable. |
| | Providing the necessity of installation or replacement, the professional technician of service store appointed by manufacturer must be required, while self-operation by users is prohibited. |
| | In case of any electric shock accident, the creepage protection devices /power supply on-off switch and breaker must be required with. |
| | The specification of fuse for single phase control board is F5AL 250V, while for 3 phase control board, both indoor and outdoor unit, it is F3.15AL 250V. |
| | Machine must be earthed surely. or it'll be probably cause creepage. |
| Notice | The earth line is neither allowed to connect to gas pipe, water pipe ,circuitry of telephone or lighting rod, nor to the earth line of other devices. |
| Others | Please fix power supply cord and connection wires of indoor and outdoor, in accordance with circuit diagram Fix the cords into terminal boards properly and safely with cable fixation tools to avoid any danger caused by the power cord under outside forces. After fixation, use bind tape (affixed) to bind wires avoiding any collision with other components like compressor, copper pipes...etc |

8.3.2 Electrical connection

Wiring diagram of indoor & outdoor, refer to the section of part 1

Recommendation of power supply cord**Power supply:220~240V,50Hz**

| Capacity (BTU) | Model | Power supply | Indoor power cable |
|----------------|--|--|--------------------|
| 7000 | AMWM-H07/4R1(#) AMSD-H07/4R1 | Outdoor unit 220-240V~50Hz IndoorUnit 220-240V~50Hz | 3×1mm ² |
| 9000 | AMWM-H09/4R1(#) AMCA-H09/4R1A AMCF-H09/4R1 AMSD-H09/4R1 | | 3×1mm ² |
| 12000 | AMWM-H12/4R1(#) AMCA-H12/4R1A AMCF-H12/4R1 AMSD-H12/4R1 | | 3×1mm ² |
| 18000 | AMWM-H18/4R1(#) AMCA-H18/4R1A AMCF-H18/4R1 AMSD-H18/4R1 | | 3×1mm ² |

| Power supply | Series | Max. Current(Normal) | | |
|-------------------------------|----------------|--------------------------------|---|--|
| | | Rated cooling (35/24 27/19) | Maximum frequency operation (39/26 32/23) | Maximum capacity operation (43/26 32/23) |
| Outdoor unit 220-240V~50Hz | 1 drive 2(18K) | 10.9 | 11.6 | 9.50 |
| | 1 drive 3(24K) | 15.4 | 16.9 | 14.8 |
| | 1 drive 3(27K) | 15.6 | 17.1 | 15.0 |
| | 1 drive 4(36K) | 22.4 | 24.1 | 21.9 |
| | 1 drive 5(42K) | 23.0 | 24.7 | 22.6 |
| Outdoor unit 187V~50Hz | 1 drive 2(18K) | 11.7 | 12.1 | 11.8 |
| | 1 drive 3(24K) | 16.6 | 17.3 | 16.1 |
| | 1 drive 3(27K) | 16.8 | 17.5 | 16.3 |
| | 1 drive 4(36K) | 22.6 | 24.3 | 22.1 |
| | 1 drive 5(42K) | 23.2 | 24.9 | 22.8 |

Notice:

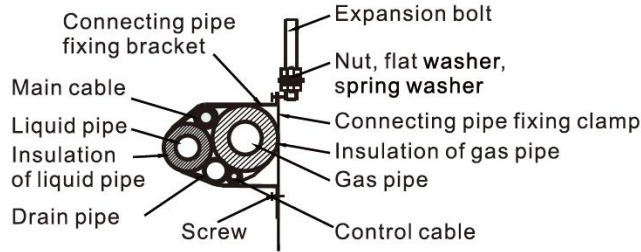
- ◇ Above mentioned power supply cord is the cable which connect air on-off of indoor to indoor/outdoor unit. Power supply cord of indoor/outdoor unit is the power supply cable connecting indoor and outdoor unit
- ◇ The section area of power supply cord core is minimized one. To avoid voltage pressure dropped down, while longer power supply cord needed, the section area should be enlarged for one gauge.
- ◇ The connection wires to indoor unit is the cable of 27IEC53(RVV) type, 300/500V; while the connection wires to outdoor unit and the connection wires from outdoor to indoor unit is the multi-end of cable (neoprene)of 245IEC57(YZW)type,300/500V. if the single core with double skin type of cable is chosen for installation,, please choose 1# gauge of section area and wrapped with special jacket for electrician.
- ◇ All of the ceiling/floor type unit is without accessorial electric heating

8.3.3 Wire connection**Indoor wire connection**

Remove electric control box cover of indoor unit, connect the wires in accordance with the electradiagram mentioned on the back of the cover. The wire ends must be tightly fixed into terminal boards. The earth wire must be fixed into appointed position.

Outdoor wire connection

- ◇ Remove the electric item cover, which is positioned in the right side of outdoor unit, connect the wires in accordance with the electric diagram on the back of the cover.
- ◇ Be sure that pressing the wires tightly with the terminal boards while it through the board, the wire ends must be tightly fixed into terminal boards. The earth wire must be fixed into appointed position.
- ◇ After all the wire connected, bundle connection pipe, connection wires and drainage pipewith strips like mentioned drawing below:

**Notice:**

- ◇ **Be sure don't make the drainage pipe flat while bundled.**

8.4 Commissioning**Check installation condition**

- ◇ Check indoor/outdoor unit installation and wire connection in accordance with the requirement of service manual.
- ◇ Check the power supplying, diameter of wires, air on-off switch and make sure that the items can be matched with machines, earth wire connection safety.
- ◇ Check air inlet/outlet duct and make sure that the items is clean, operating smoothly.

Commissioning

- ★ The system should be power on for 8 hours for preheat before the first time start up.
- ★ During winter, while after 8 hours power off, the performance test should be 2.5 and half hours power on later:
- ◇ Power on the system and start up in cooling mode.
- ◇ After 3 minutes compressor protection, check whether there is normal cooling air come from indoor unit and if there is abnormal noise come from indoor/outdoor units
- ◇ Configure the mode with "fan" and check whether there is high speed airflow come from indoor unit.
- ◇ Operate "swing" mode, check whether the louver is properly swaying.
- ◇ Press the other buttons on the remote controller and check whether the complete unit is on proper working condition
- ◇ Keep on running for 1 hour with "cooling" mode and check if the drainage system is on proper condition
- ◇ Switch the mode for "heating" and check whether there is warm airflow come from indoor unit, whether there is abnormal noise come from indoor/outdoor units
- ◇ After confirmation of normal working condition, press the "on-off" button to stop the system.
- ◇ At last, train the end users with operation, maintaining and special notice.

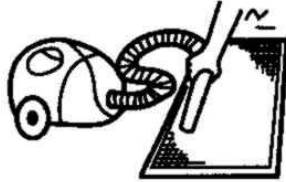
8.5 Daily maintenance

Clean filter net

- ◇ Before cleaning the filter, ensure the unit is switched off and the power is off.
- ◇ Forbidden to use water clean the filter , it will hurt PCB or get an electric shock.
- ◇ When cleaning filter net, be sure to stand steadily, and please be careful using a lift or others.

Washing filter net

- ◇ Use vacuum or water to clean the net.
- ◇ In order to ensure the best performance of your air conditioner, clean the air filter regularly, We recommend cleaning once a month or more frequently if required.
- ◇ When the filter is very dirty it can be washed in detergent and hot water (below 45°C).
- ◇ Ensure the filter is fully dry before reinstallation to avoid risk of electric shock or short circuiting.
- ◇ Do not dry the filter using direct sunlight.



Check at the beginning of each season

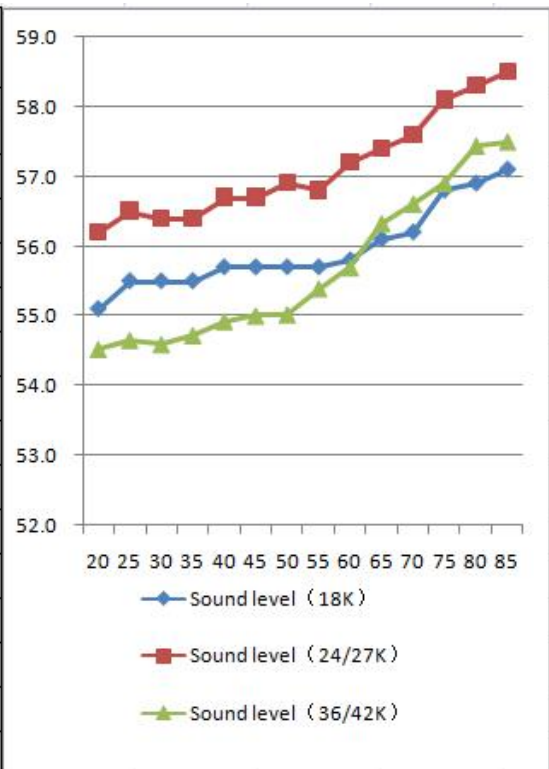
- ◇ Check whether there are no physical obstructions at the air inlet or outlet of either indoor or outdoor unit.
- ◇ Check whether there are garbage at the water outlet.
- ◇ Check whether electrical cables are in good condition, particularly the earth cable.
- ◇ When power on, check weather letters display on the screen of the wired controller.
- ◇ When working in winter, the system must be power on for 8 hours before the first time start up.

Check at the end of service season

- ◇ Operate for 2~3 hours under the ventilation condition; remove the moisture of the indoor unit..
- ◇ If not use air conditioner in a long time, please cut off the power to save energy, the letter will disappear on wired controller.
- ◇ Take the batteries out of remote controller.
- ◇ Use dustproof to cover the **outdoor unit**.

8.6 Sound level of different running status

| frequency (Hz) | AM2-H18/4DR1A | AM3-H24、27/4DR1A | AM4-H36/4DR1 AM5-H42/4DR1 |
|----------------|---------------------------|---------------------------|------------------------------|
| | Sound Pressure Level (dB) | Sound Pressure Level (dB) | Sound Pressure Level (dB) |
| 20 | 55.1 | 56.2 | 54.5 |
| 25 | 55.5 | 56.5 | 54.7 |
| 30 | 55.5 | 56.4 | 54.6 |
| 35 | 55.5 | 56.4 | 54.7 |
| 40 | 55.7 | 56.7 | 54.9 |
| 45 | 55.7 | 56.7 | 55.0 |
| 50 | 55.7 | 56.9 | 55.0 |
| 55 | 55.7 | 56.8 | 55.4 |
| 60 | 55.8 | 57.2 | 55.7 |
| 65 | 56.1 | 57.4 | 56.3 |
| 70 | 56.2 | 57.6 | 56.6 |
| 75 | 56.8 | 58.1 | 56.9 |
| 80 | 56.9 | 58.3 | 57.4 |
| 85 | 57.1 | 58.5 | 57.5 |

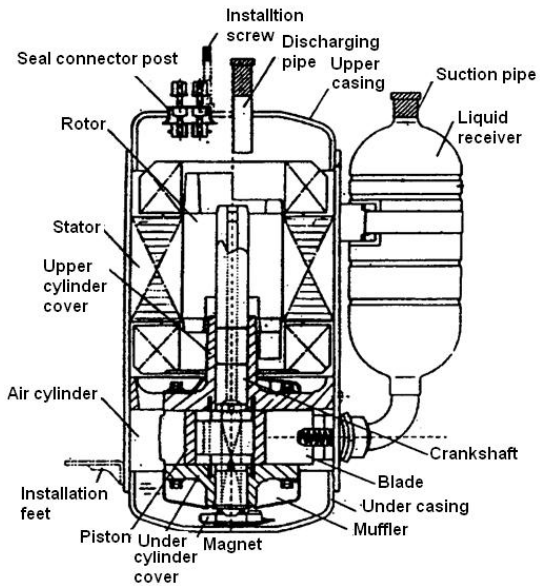
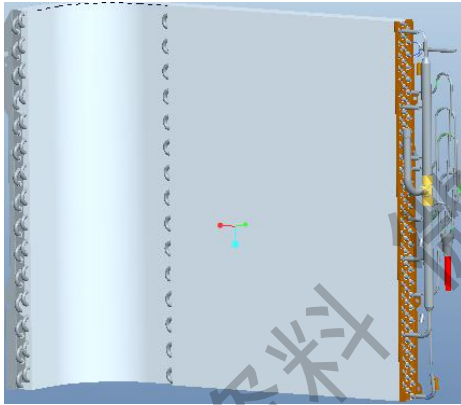
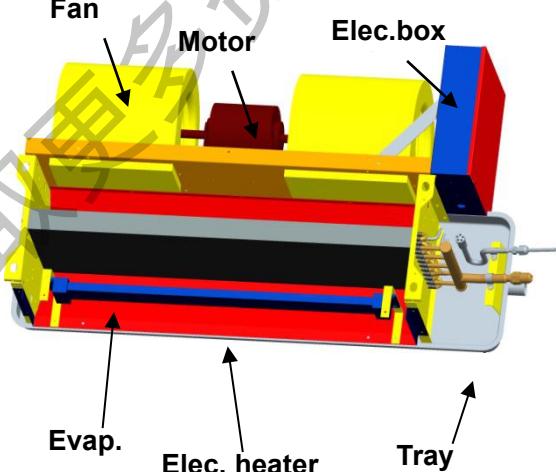


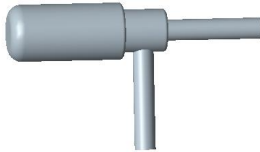
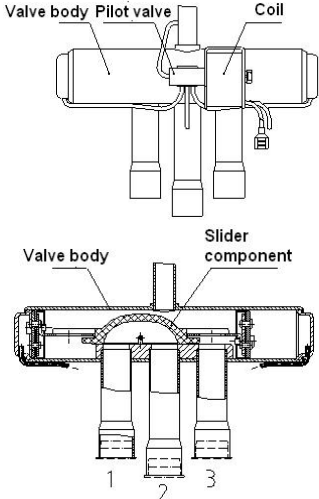
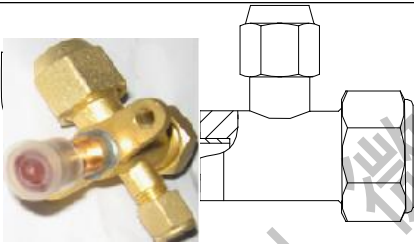
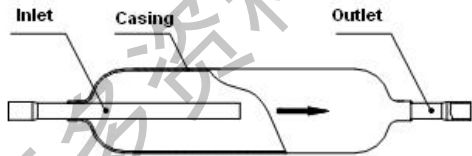
Part 4 Trouble shooting

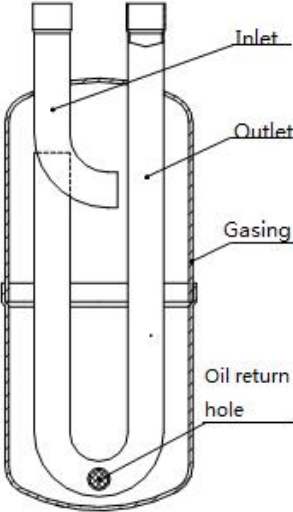
| | |
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1. Main components of air conditioner

| Appellation | Figuration and inner configuration | Instruction |
|-----------------------------|---|--|
| Compressor |  | <p>The function of compressor: after refrigerant evaporate in evaporator, compress the low temp and low pressure refrigerant gas, make the gas become high temp and high pressure gas, and then send the gas to condenser, make the refrigerant cycle.</p> |
| Condenser (heat exchanger) |  | <p>The function of condenser: Make the high temp and high pressure refrigerant gas discharged by compressor become liquid [make the gas heat exchange with air], (Remark: when heating, condenser will become evaporator)</p> |
| Evaporator (heat exchanger) |  | <p>Function of evaporator: Make the low pressure refrigerant liquid from capillary or expansion valve become gas(make the liquidheat exchange with air)</p> |

| | | |
|---|---|---|
| <p>EXV (Electronic expansion valve)</p> |  | <p>Function of EXV: Utilize aperture and length change bring pressure gap, control refrigerant flow quantity and pressure. EXV is controlled by PCB, more precisely.</p> |
| <p>Four way valve</p> |  | <p>Function of 4 way valve: When change cooling mode into heating mode, it will change the flow direction of refrigerant; When heating, the valve get electricity(cooling without electricity), the slip assembly move to the right connect pipe 2 and 3, so change the flow direction.</p> |
| <p>Stop valve</p> |  | <p>Function: To stop or release refrigerant, only on/off, can't adjust or throttle</p> |
| <p>Muffler</p> |  | <p>Function: Eliminate the system noise</p> |

| | | |
|---------------------------------|---|---|
| <p>Gas and liquid separator</p> |  <p>The diagram shows a vertical cylindrical separator. At the top, there are two ports: the left one is labeled 'Inlet' and the right one is labeled 'Outlet'. Inside the cylinder, there is a horizontal baffle or 'Gasing' section. At the bottom of the cylinder, there is a small circular 'Oil return hole'.</p> | <p>Function: Separate liquid and gas refrigerant, to protect the compressor</p> |
|---------------------------------|---|---|

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2. Electrical system main components

| Appellation | Figuration and inner configuration | Instruction |
|-----------------|---|---|
| PCB |  | <p>Function: Via program to control the relay, make every components on/off according to temperature and pressure variety, so to realize automatic control</p> |
| Fan motor |  | <p>Function: Drive the fan, make the indoor and outdoor unit have heat exchange with air.</p> |
| Pressure switch |  | <p>Function: To avoid the air conditioner work in a abnormal pressure, making the air conditioner work safety.</p> |
| Capacitor |  | <p>Induce the single-phase motor produce gyre magnetic field, connect with the accessory winding, and participate in the operation.</p> |
| Condensate pump |  | <p>Only for Cassette, the pump head is 1.2 meter, the condensate pipe must have over 1/100 descend angle, after unit cooling or dehumidify stops running, the pump will still work 3 minutes to clean the condensate.</p> |
| Sensor |  | <p>Physical properties will change along with the temperature, pressure change, used for check temperature and pressure.</p> |

3. Poor efficiency explanation

During the process of using air conditioner, some phenomenon seems to be malfunction but actually not. Thus when cooling or heating effect does not achieve to your expectation, the following factors have to be ruled out

| Phenomenon | Causing explanation |
|---|--|
| High outside temperature and too many people in the room, even air conditioner runs at full-load operation, the wind blowing out from air outlet is cold, but it is difficult to lower the indoor temperature, this is not malfunction. | When the outdoor temperature is higher, more heat penetrates into indoor space, which increases the cooling load of AC. If there are too many people(for example 10) and each person gives off 120W, totally 1200W, this will running out of half of AC cooling capacity, and the unit's cooling capacity this time is far from enough, indoor temperature is hard to lower down. It is normal phenomenon and do not mean useless of AC. |
| Power voltage is too low, causing AC uneasy to start and shut down after starting, or fuse be burned out etc. | If the electricity net voltage is too low, user should load a power manostat to keep voltage between 220V-380V for AC normally running |
| Select high wind speed but indoor temperature still at high side, air flow from the air outlet is too weak. | It is because air filter is too dirty or blocked making cooling capacity fail to be brought by air flow, causing cooling capacity inadequate. Take out filter and wash, the problem will be solved. |
| Select high wind speed, the vibration and sound of unit are severe. | Fan runs at high speed, severe vibration and sound of unit is normal phenomenon |
| Temperature controller adjusts improper and max cooling capacity is not utilized completely, thus indoor temperature can't lower down. | Check the temperature controller, and problem will be solved. |
| As for Heat pump air conditioner heating effect is not ideal during cold winter, this is normal phenomenon. | The lowest temperature is -7°C when heating, below this temperature unit cannot heat effectively. |

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4. Failure phenomenon

| Phenomenon | Causing explanation |
|--|---|
| Mirage comes out from indoor unit | The humidity of the room is too high, the moisture in the air become vapour when in the cold airflow from AC |
| Noise | <ol style="list-style-type: none"> 1. When air conditioner stops running, there will be some noise, and this is because the refrigerant flows contrarily. Refrigerant expand or shrink according to temperature change. 2. Liquid sound is from refrigerant flowing |
| Sometimes, the room is smelly | <ol style="list-style-type: none"> 1. The AC itself will not be smelly, if it is smelly, it is because environment smell accumulated 2. Solution: clean the filter of indoor unit. |
| when heating, there is no wind at the beginning of starting unit | It is to prevent cold air blowing, please be patient |

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5. Electric components malfunction inspection

| No | Component name | Inspection methods |
|----|----------------------|--|
| 1 | Compressor | Using multi-meter ohm phase, there is correct resistance value among windings (single phase compressor refers to specification, three phase compressor resistance approximately equal), resistance of winding should be infinite. |
| 2 | Control board | Check whether any connection part of PCB loosen or drop off, printed tinsel and components have any burn, fade, breaking off or aging phenomenon, all joints exist short circuit phenomenon etc. Test the circuit board system in the term of voltage, pulse on, resistance variation, by using testing meter. Judge the output and input is normal or not according to electric principle diagram |
| 3 | Contactors | Press the contactor by hand, the contactor reacts immediately The contacting point of contactor has no burn and melt phenomenon The winding has resistance value below 1000Ω, but cannot be nil or infinite |
| 4 | 4-ways valve winding | The winding has resistance value below 1000Ω, but cannot be nil or infinite |
| 5 | Capacitor | No expansion phenomenon apparently Measure capacitor by using capacitor phase of multi-meter |
| 6 | Sensor | Using multi-meter to measure resistance, find out temperature according to resistance table, the temperature should accord with sensor temperature. Resistance cannot be nil or infinite |
| 7 | Motor | No burning trace apparently Using multi-meter ohm phase, there is correct resistance value among windings (single phase compressor refers to specification, three phase compressor resistance approximately equal), resistance of winding should be infinite. |

6. Failure code display

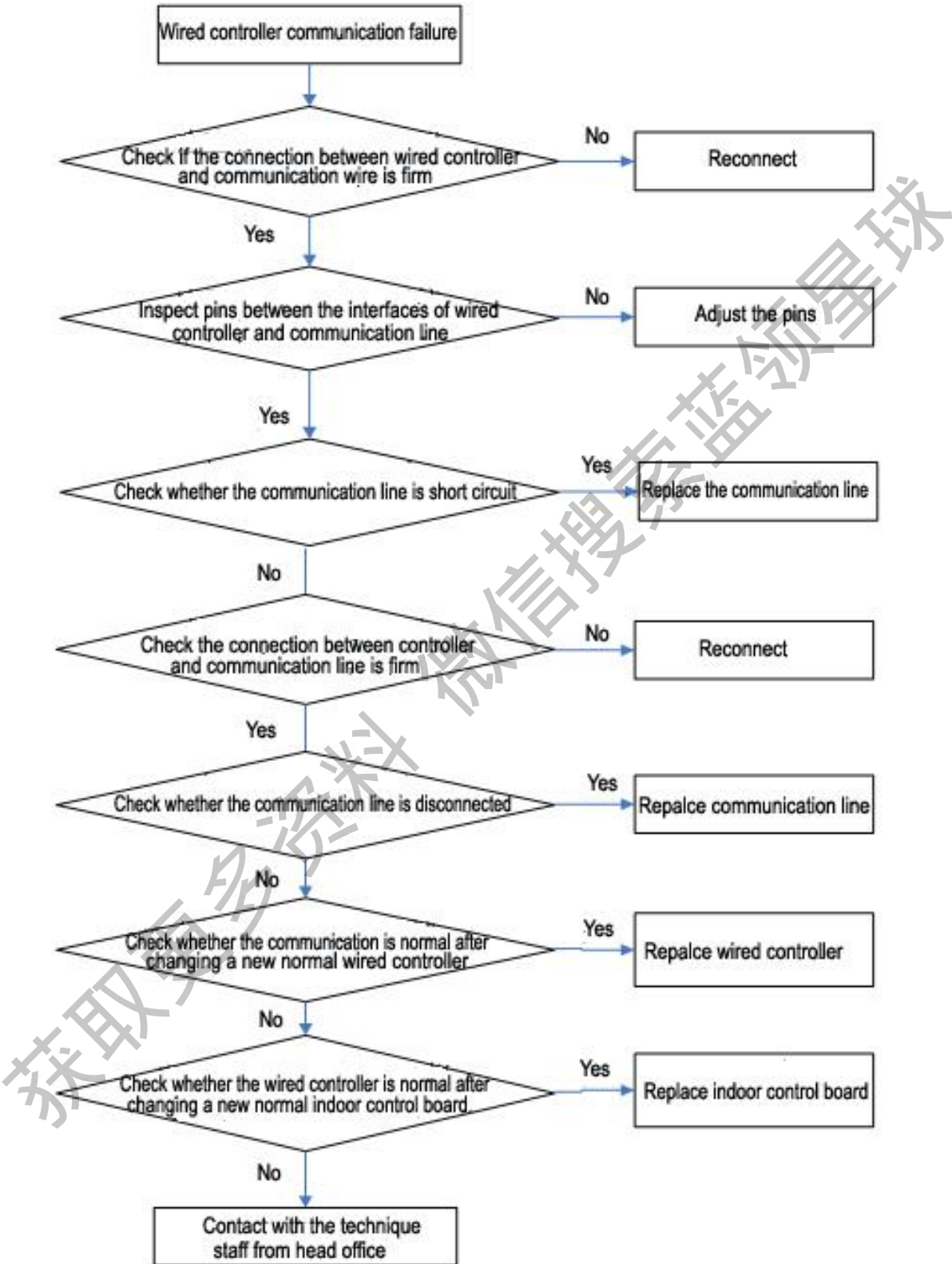
When air condition has failure, the timing lamp on light board of indoor unit or the wired controller will display different code according to different failure case.

| No. | Default | INDICATOR/FLASH (TIMES) | ERROR CODE ON WIRE CONTROLLER | COMMUNICATION CODE (SERIES) |
|-----|---|-------------------------|-------------------------------|-----------------------------|
| 1 | Air Temp fault(Tao) | 1 | E1 | 11 |
| 2 | Tcm or Tdef fault | 2 | E2 | 5 |
| 3 | Tem fault | 3 | E3 | 12 |
| 4 | Indoor Fan Motor fault | 4 | E4 | 13 |
| 5 | I/O Communication fault | 5 | E5 | 7 |
| 6 | Outdoor Fan Motor fault | 10 | F0 | 10 |
| 7 | Comp Driver fault | 11 | F1 | 1 |
| 8 | PFC fault | 12 | F2 | 2 |
| 9 | Failure start of compressor | 13 | F3 | 3 |
| 10 | Td fault | 14 | F4 | 4 |
| 11 | Outdoor air temp sensor fault | 16 | F6 | 6 |
| 12 | Over of less volt protection | 17 | F7 | 24 |
| 13 | Com fault of main pcb&driver | 18 | F8 | 8 |
| 14 | Outdoor EEPROM fault | 19 | F9 | 9 |
| 15 | Refrigerant leak protection | 20 | J3/P3 | 15 |
| 16 | Ts temp sensor fault | 21 | FA | 16 |
| 17 | Outdoor unit over current protection | 22 | J8/P8 | 18 |
| 18 | Compressor high exhaust temperature protection | 23 | J5/P5 | 19 |
| 19 | High pressure protection failure (cooling / heating) | 24 | J4/P4 | 20 |
| 20 | Four way valve fault | 25 | H8 | 53 |
| 21 | Drainage failure | 26 | H1 | 57 |
| 22 | Remote control (manipulator) communication fault | 27 | H2 | 58 |
| 23 | Compressor exhaust temperature is too low | 28 | H5 | 50 |
| 24 | Low voltage switch fault | 29 | H6 | 51 |
| 25 | Low pressure protection | 30 | H7 | 52 |
| 26 | Evaporator inlet temperature sensor fault (Te2) | 31 | H3 | 54 |
| 27 | Evaporator outlet temperature sensor fault (Te1) | 32 | H4 | 55 |
| 28 | Inside and outside communication line fault dislocation | 33 | H9 | 56 |
| 29 | Anti-freezing protection in cooling mode | / | / | 21 |

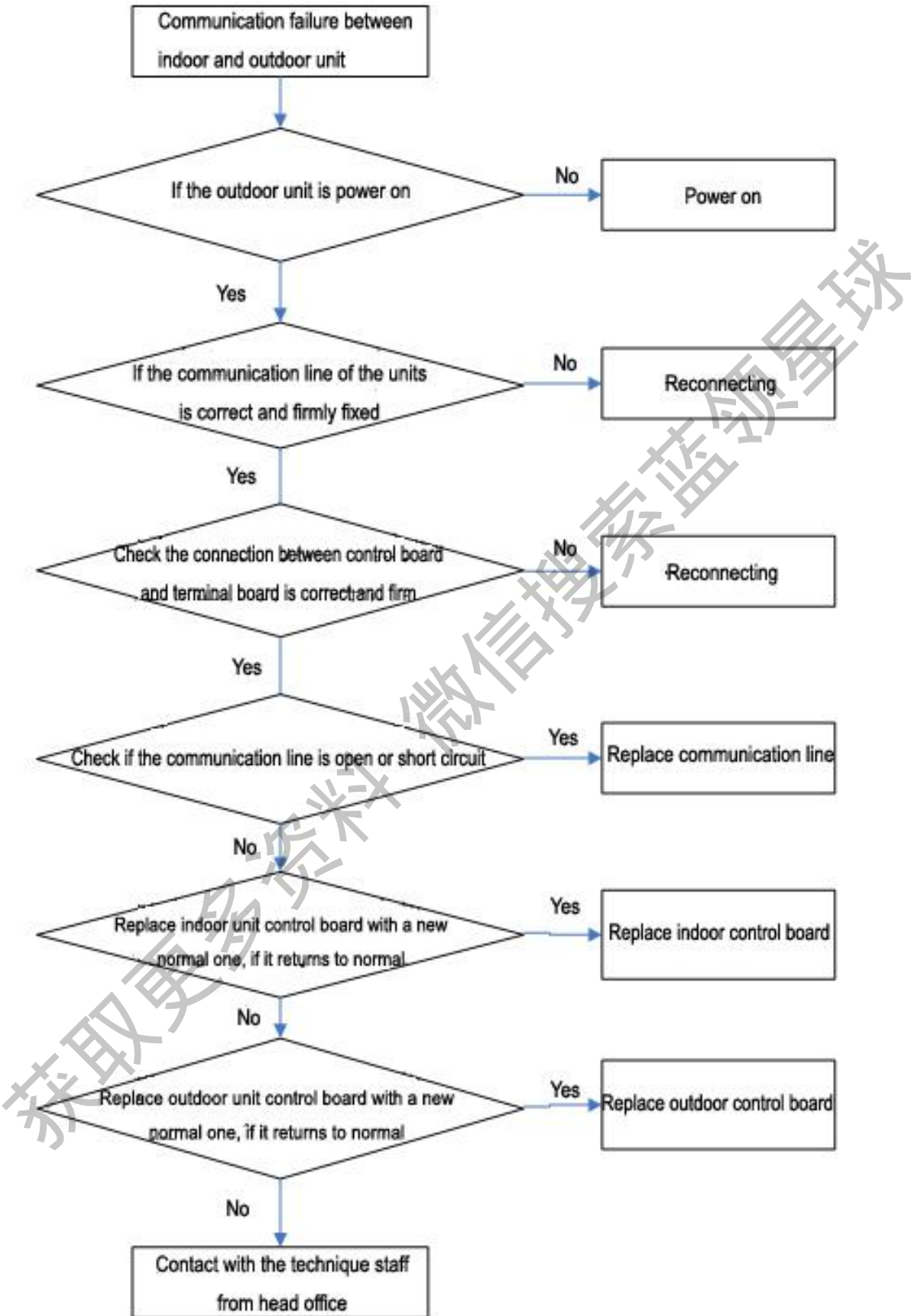
7. Failure analysis

7.1 Anylisis and Solution for Failure without Failure Code

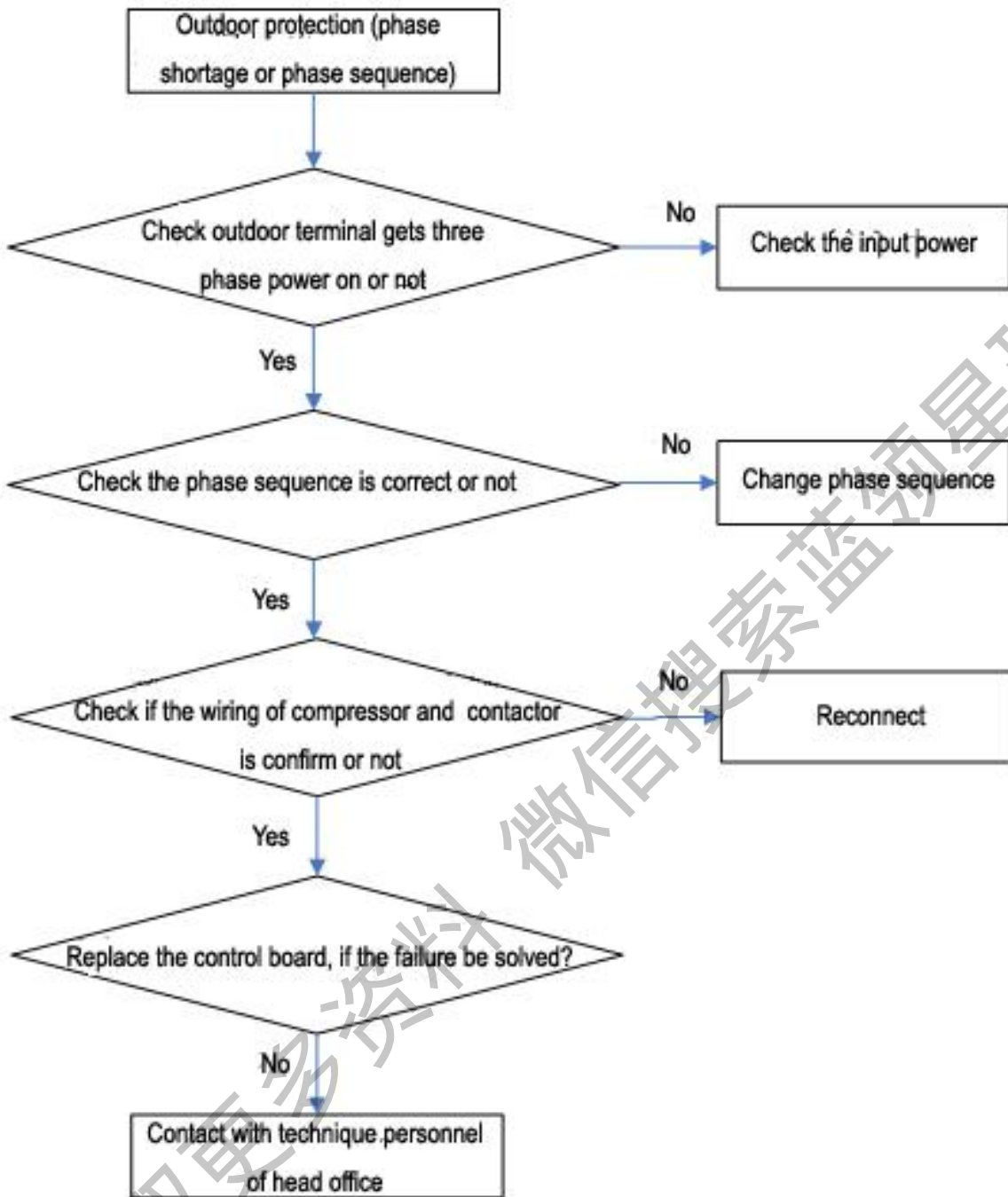
Wired controller communication failure



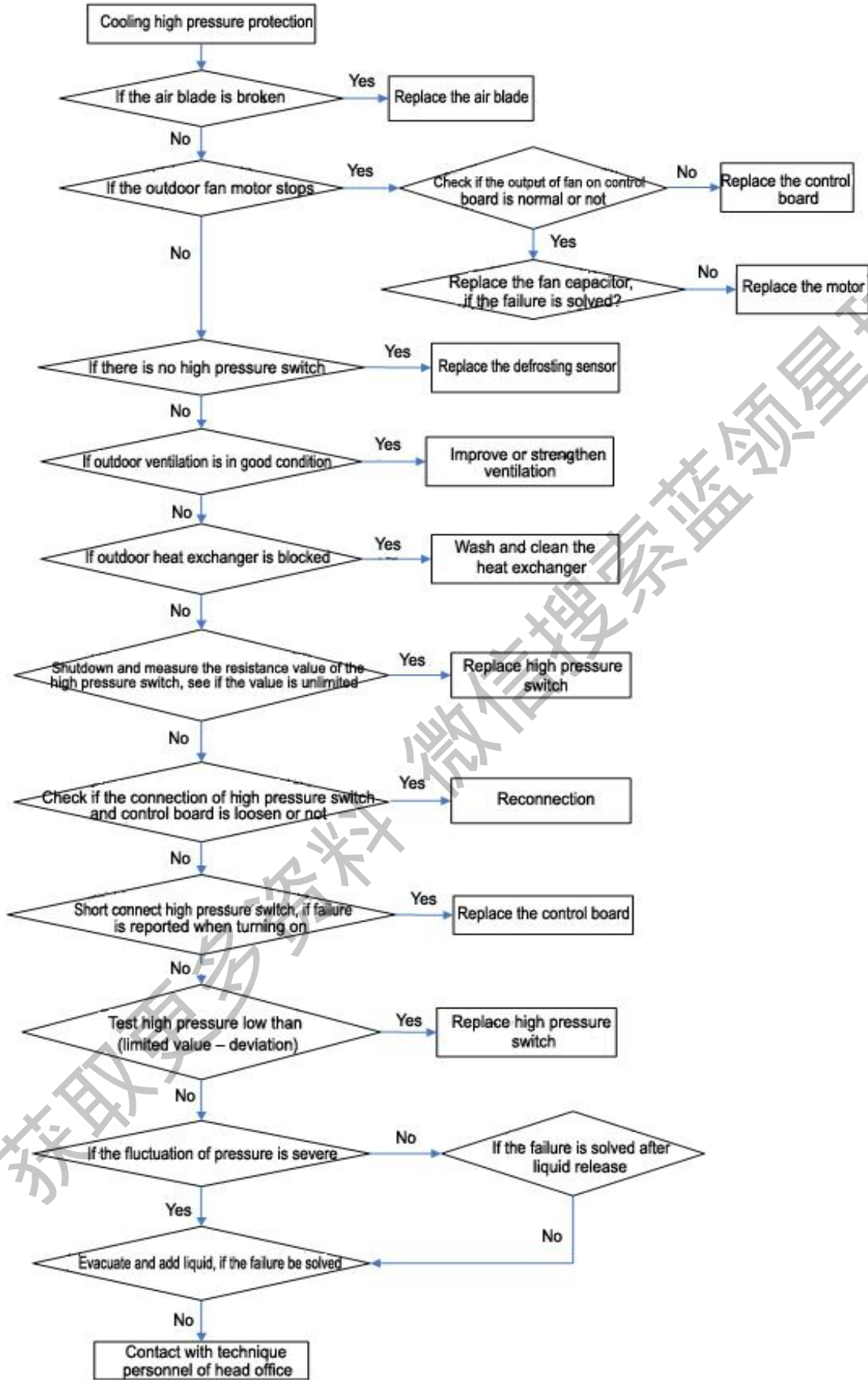
Communication failure between indoor and outdoor unit



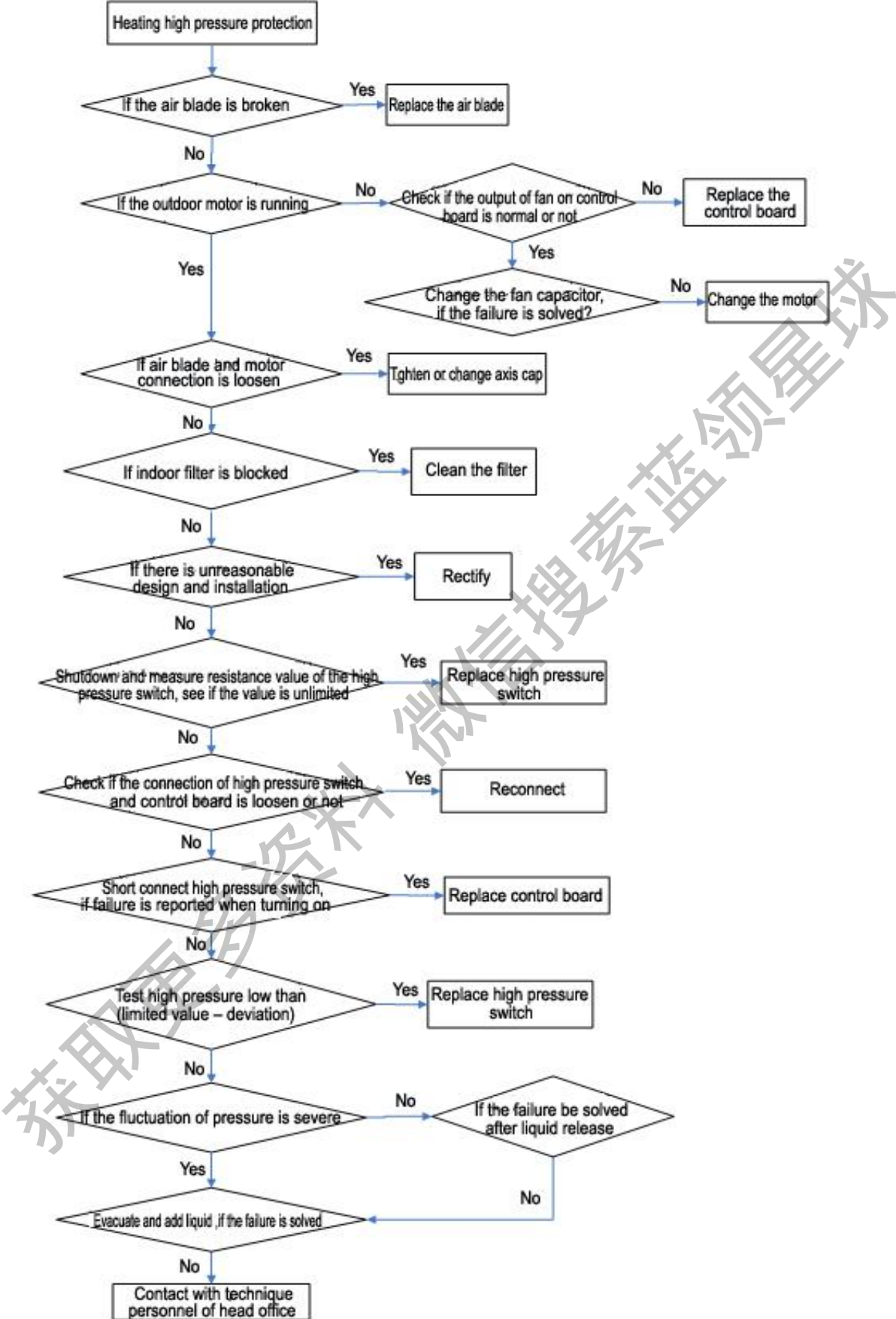
Outdoor protection(phase sequence)



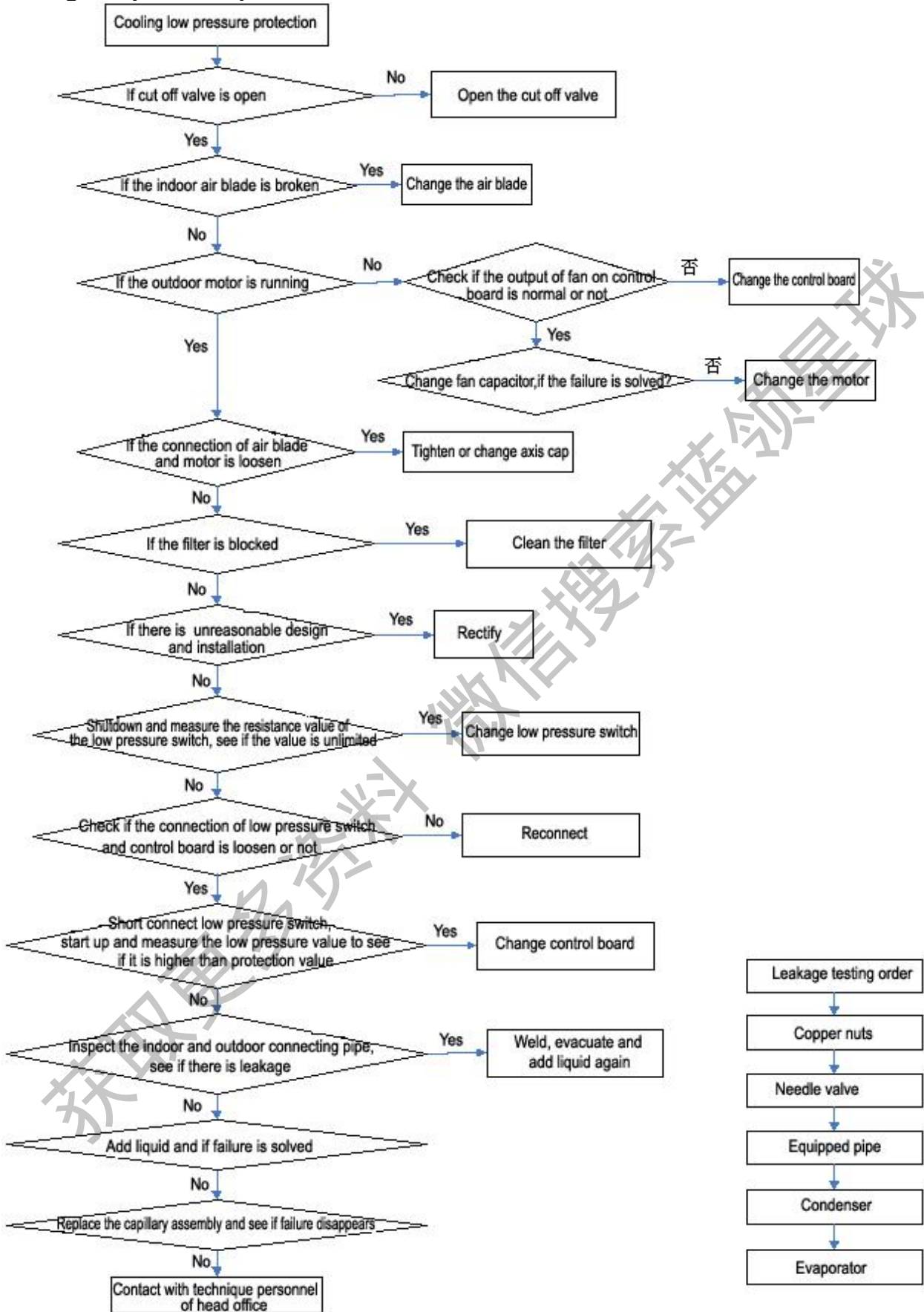
Cooling high pressure protection



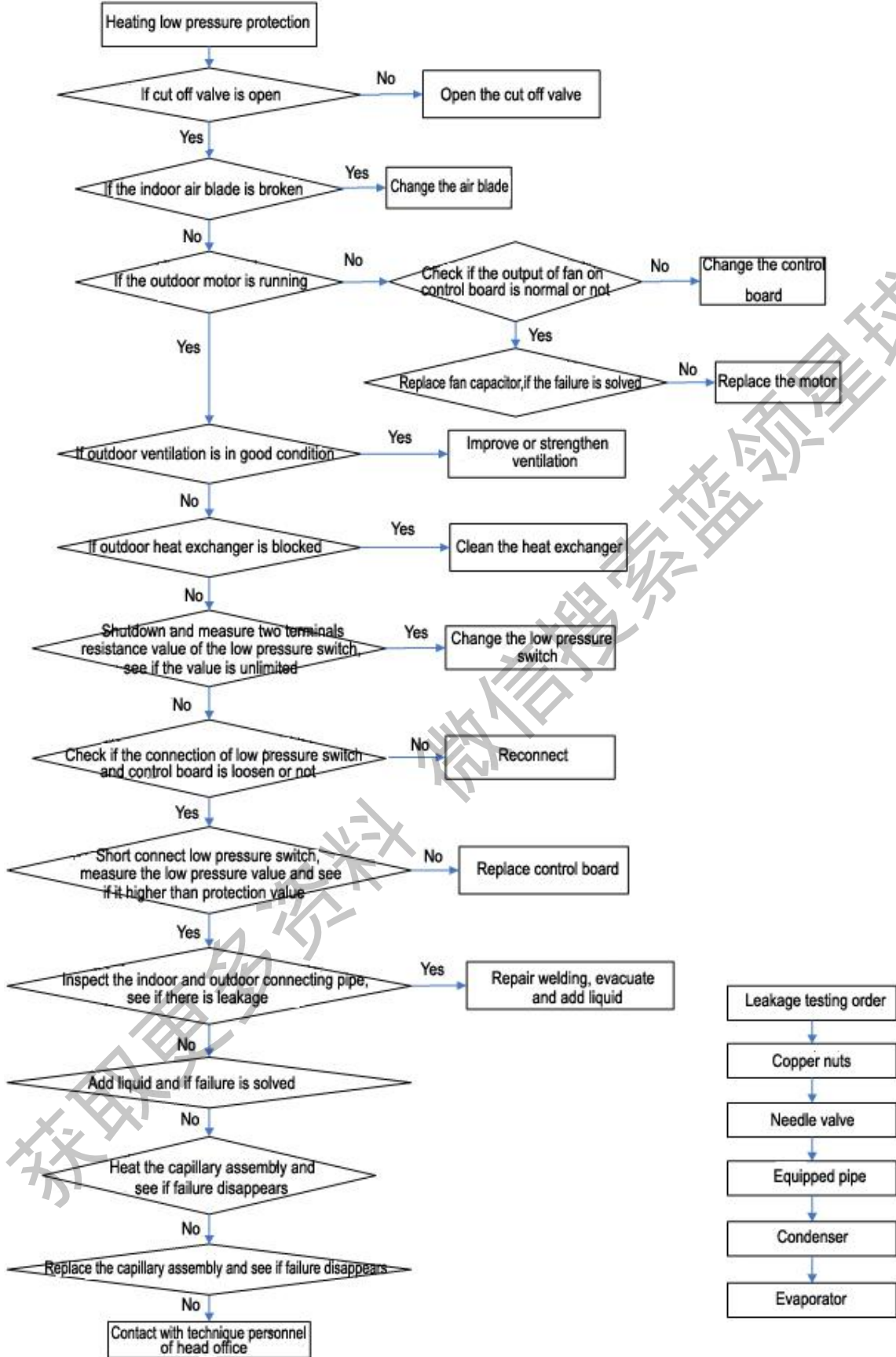
Heating high pressure protection



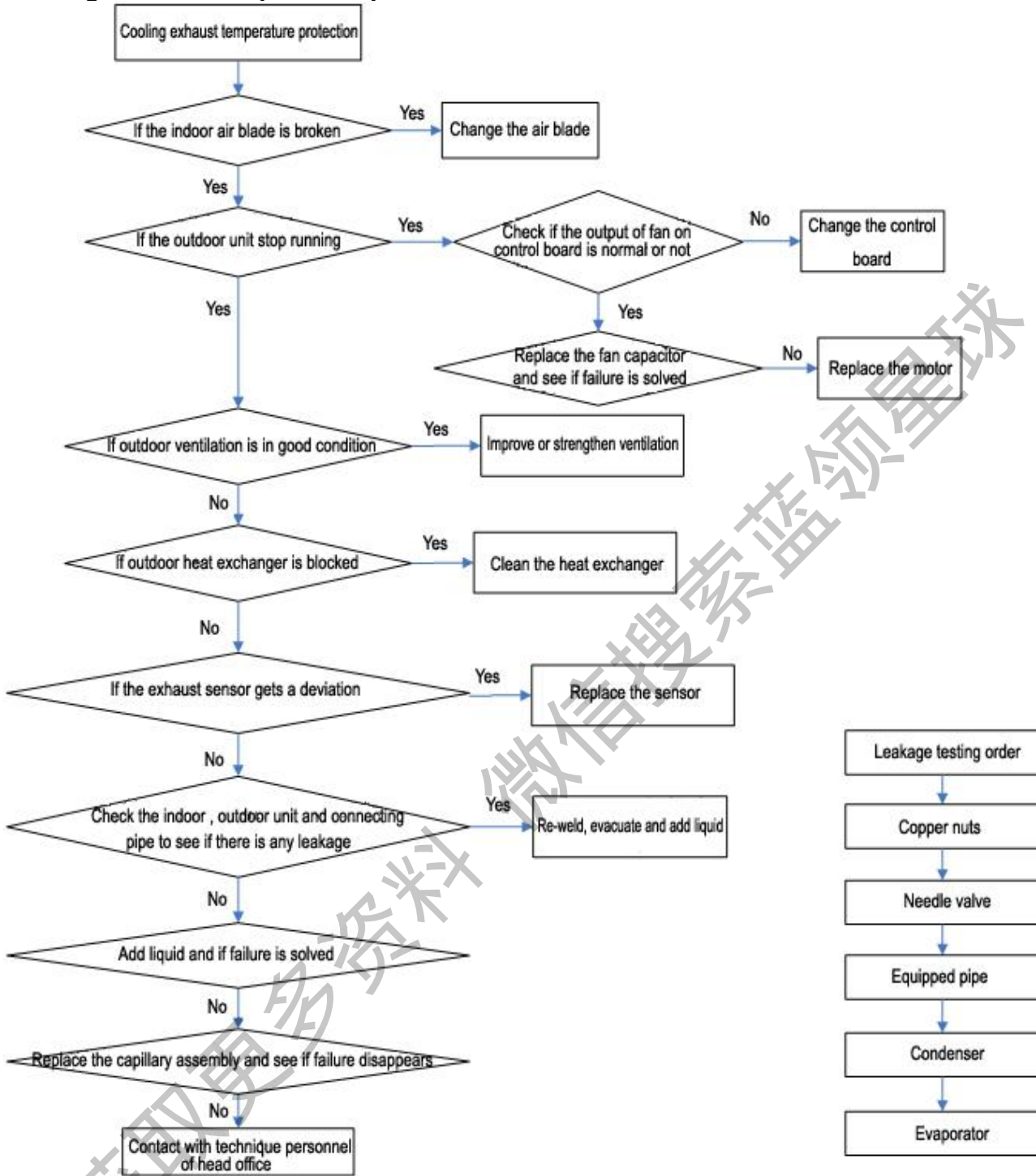
Cooling low pressure protection



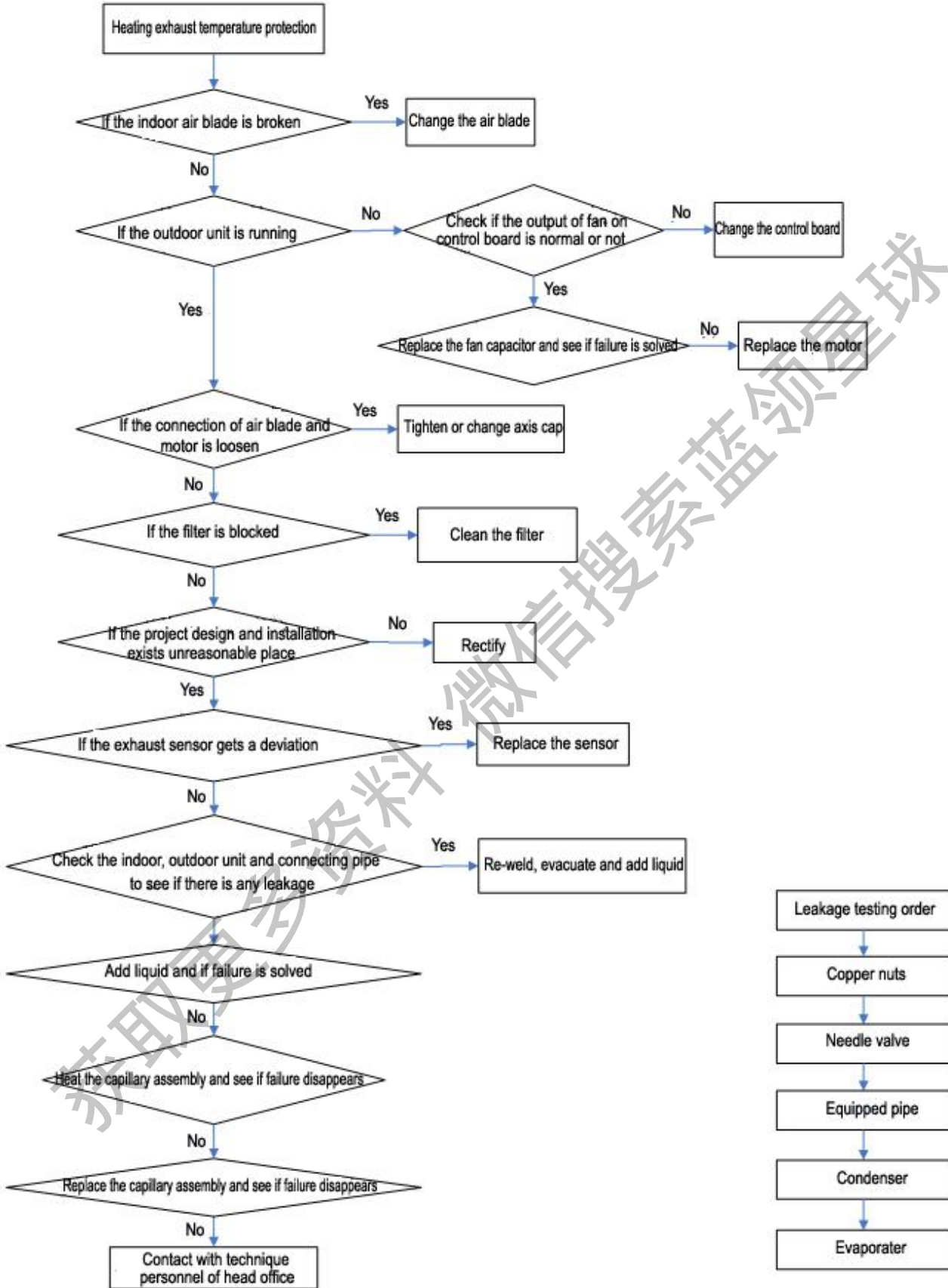
Heating low pressure protection



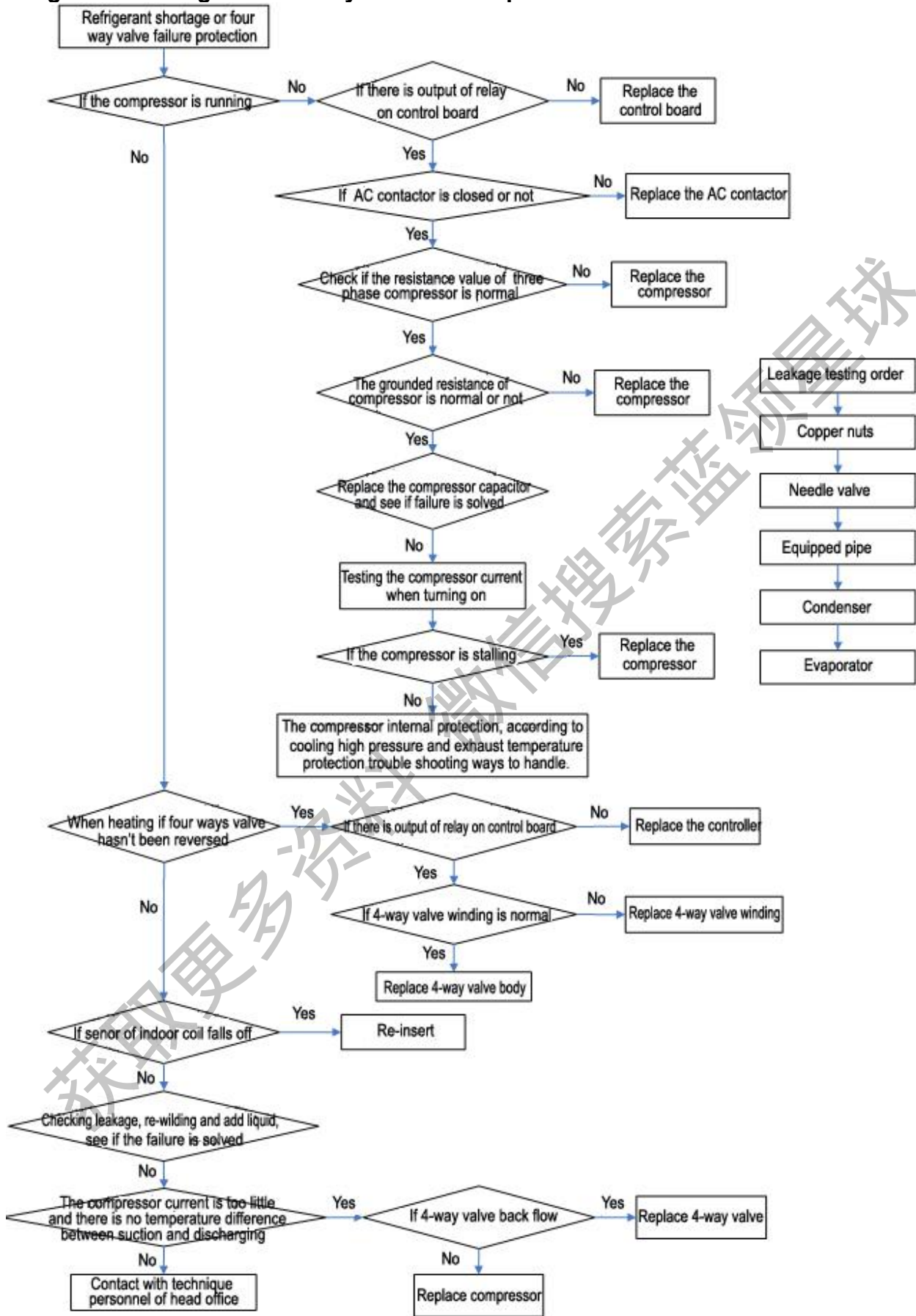
Cooling exhaust temperature protection



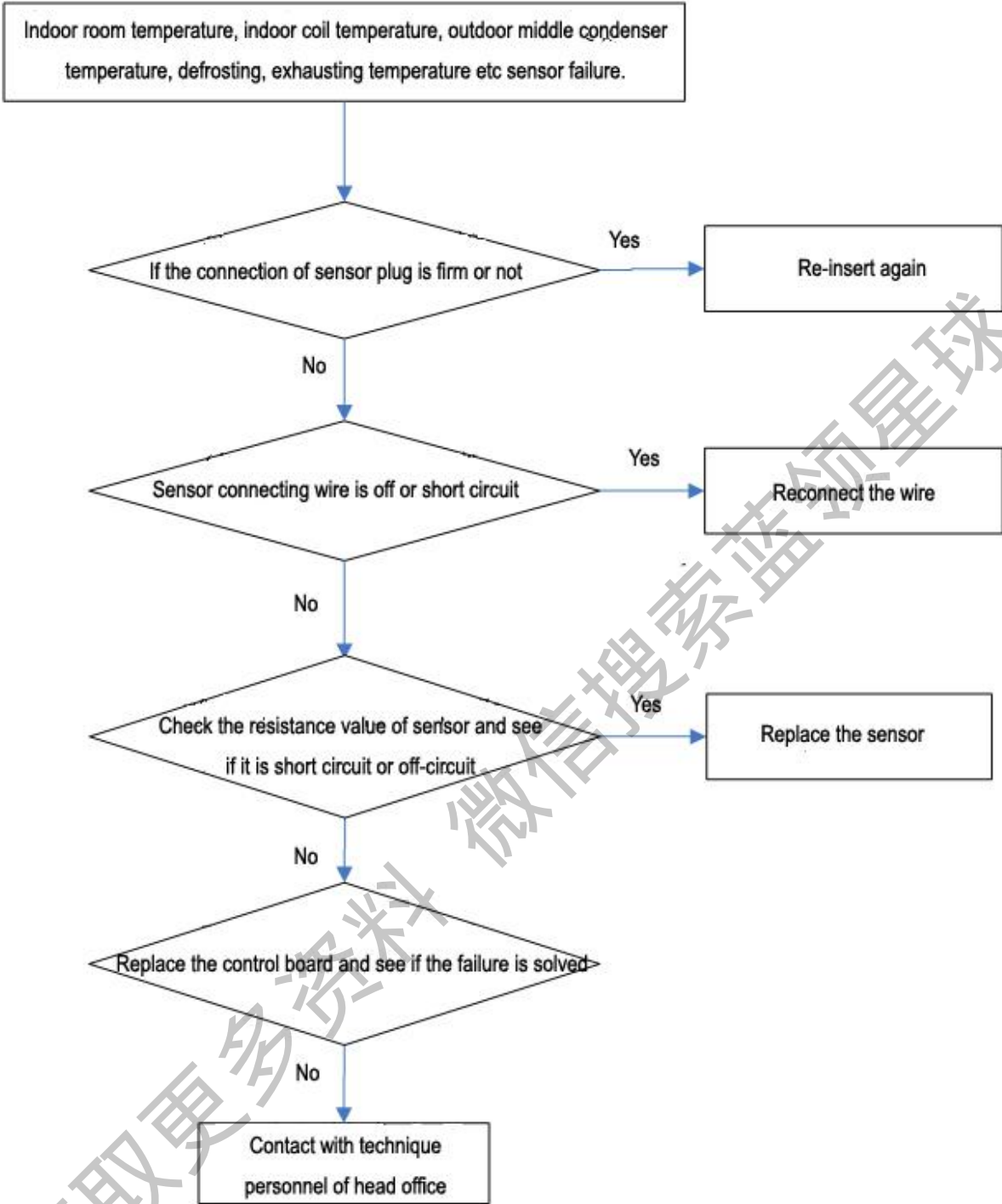
Heating exhaust temperature protection



Refrigerant shortage or four way valve failure protection

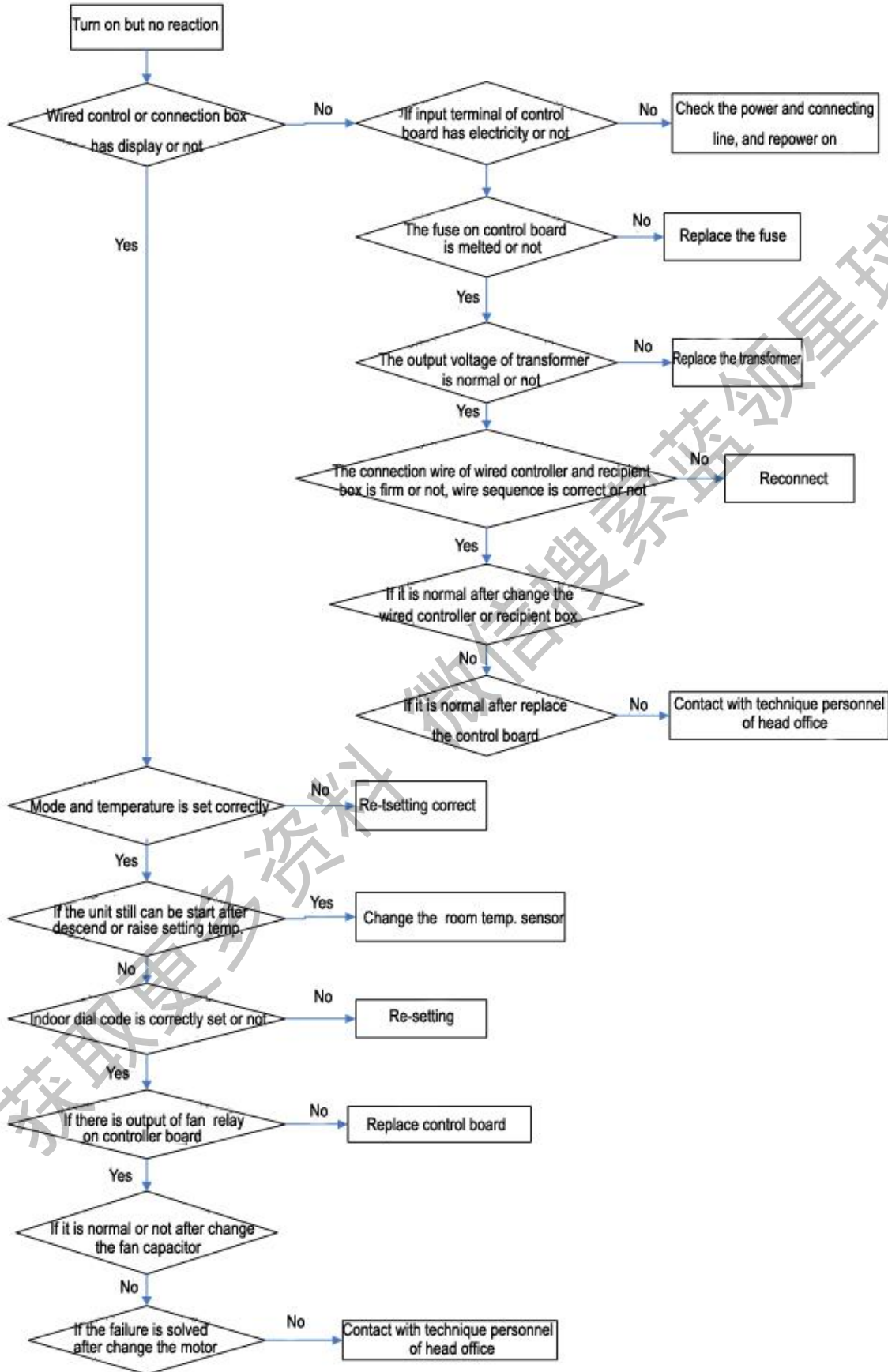


Sensor failure protection

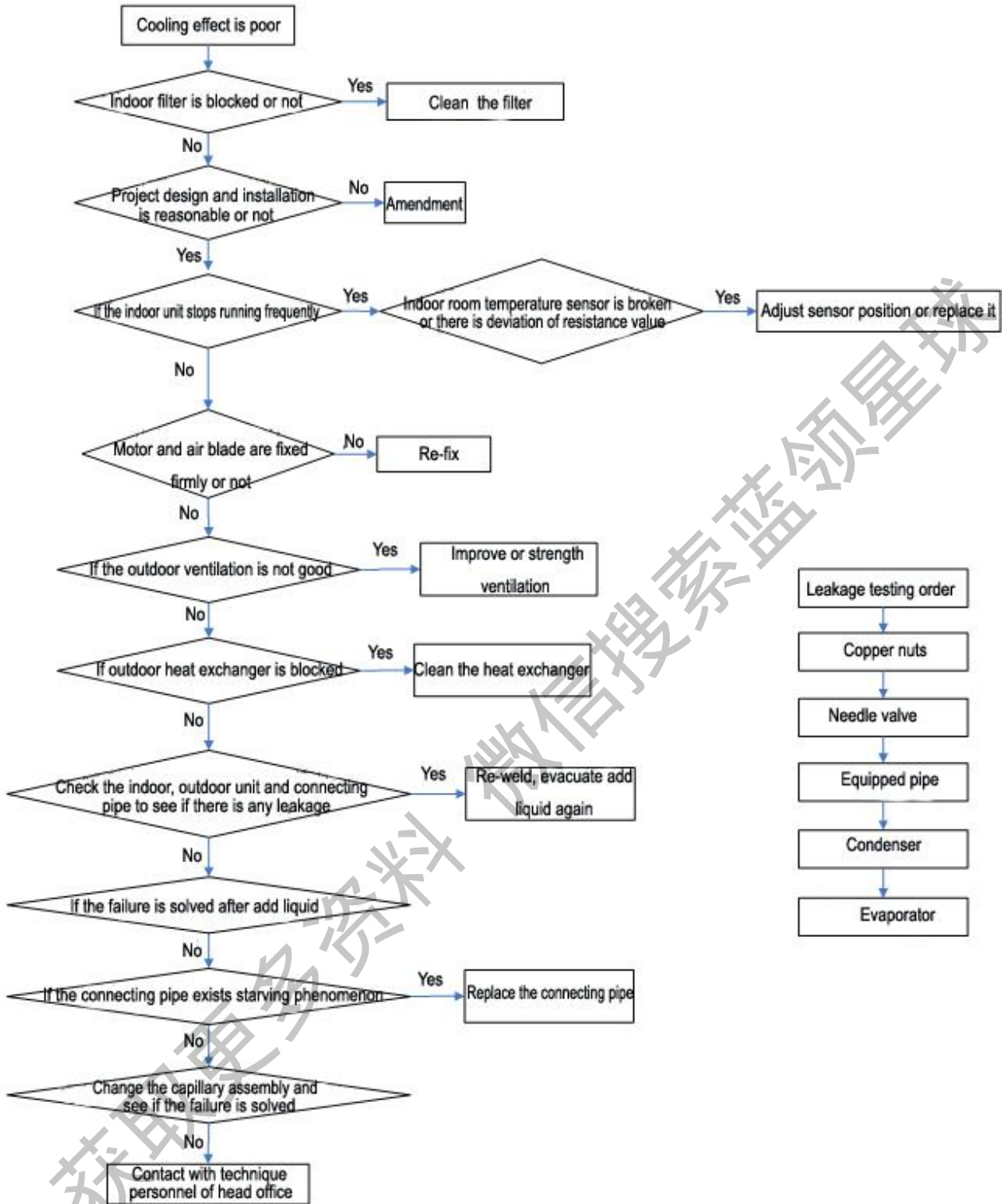


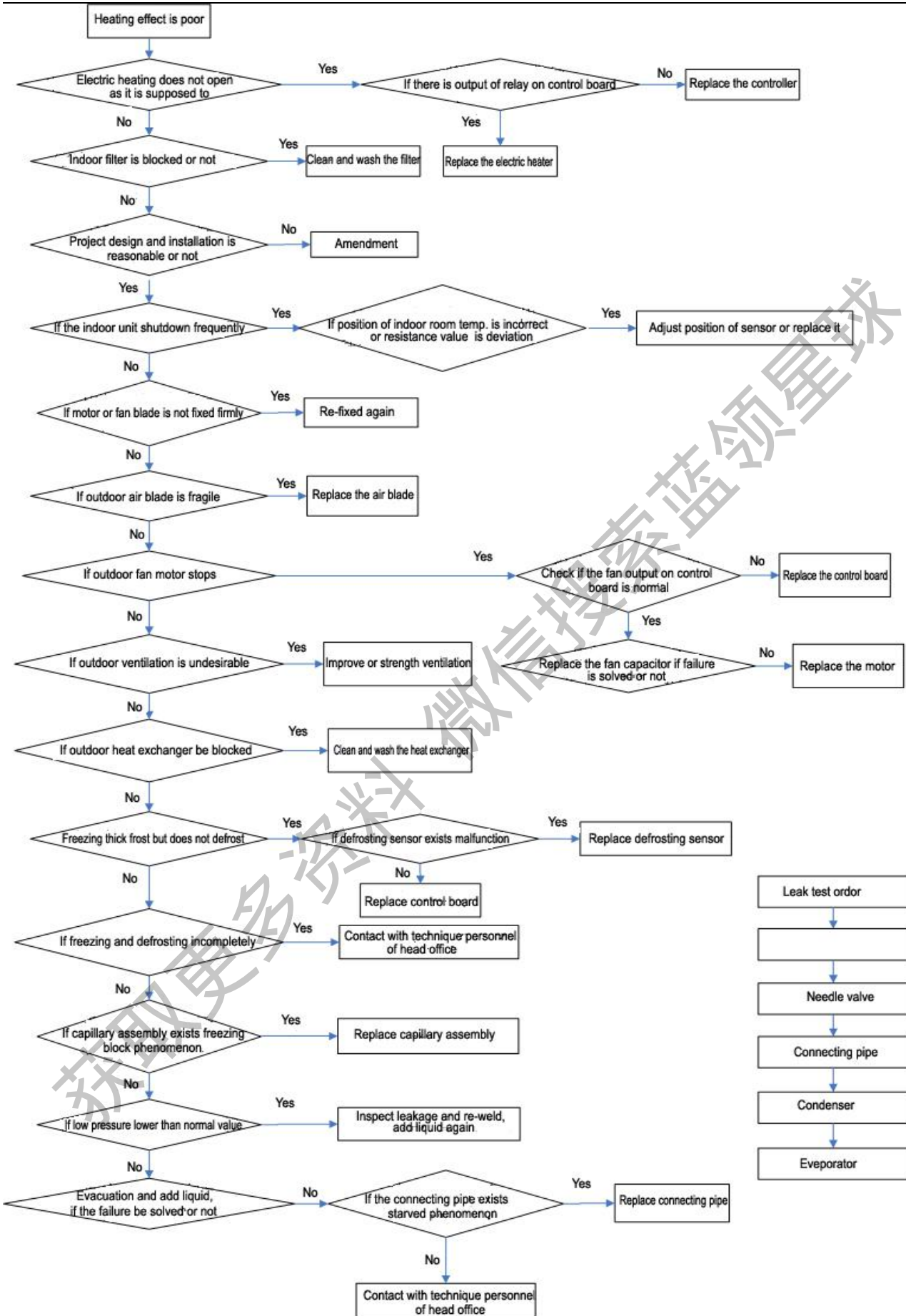
7.2 Anlysis and Solution for Failure without Failure Code

No action after power-on

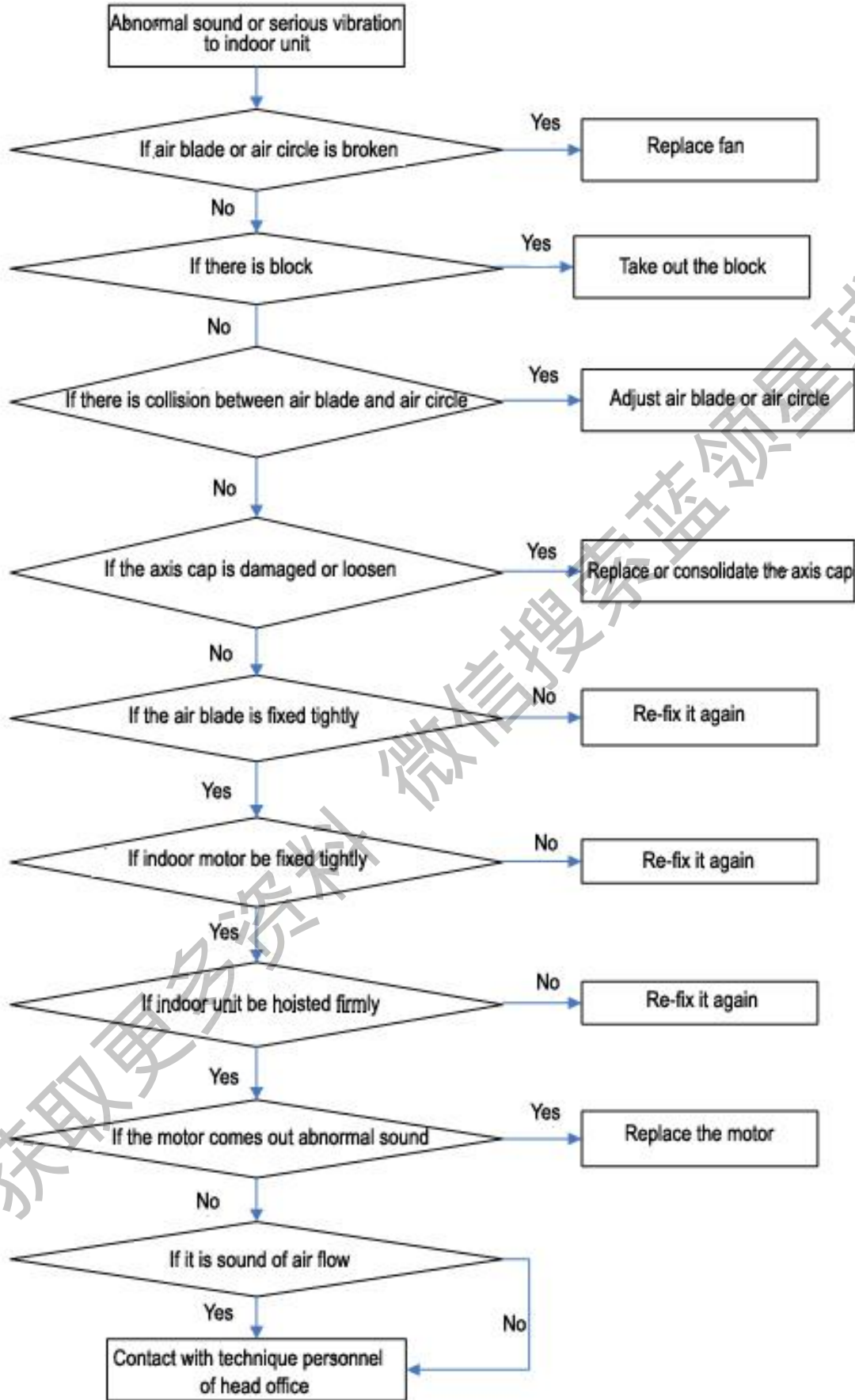


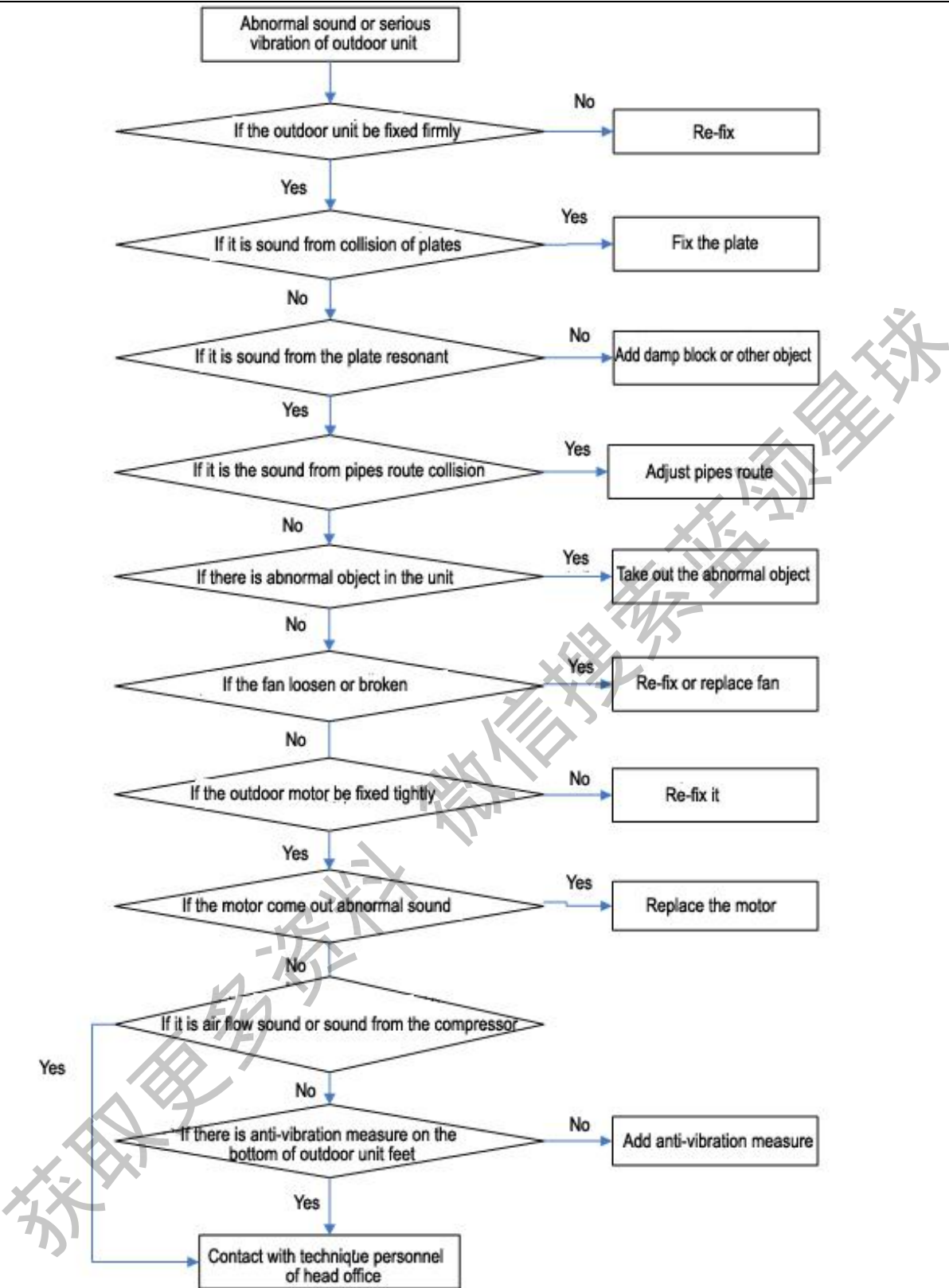
Poor effect



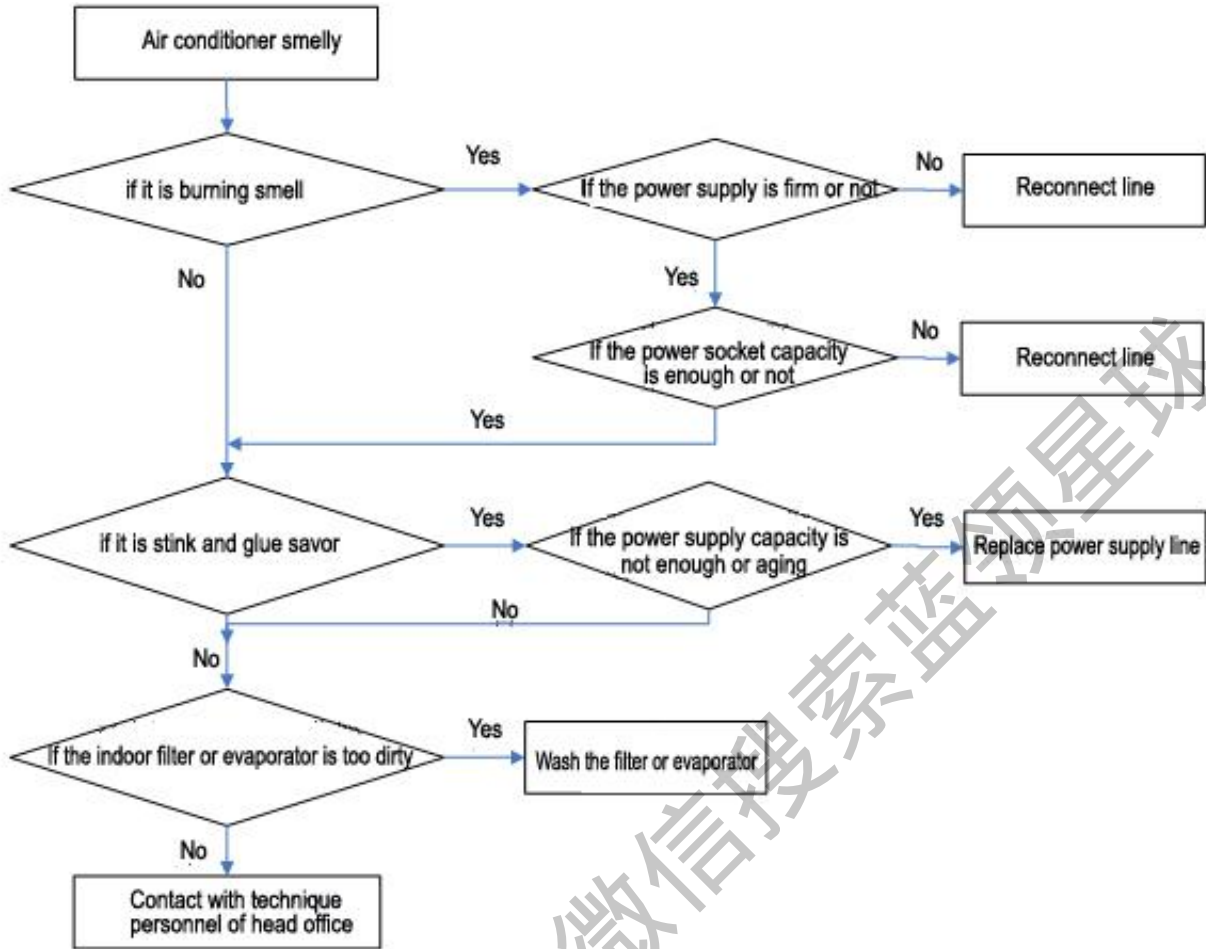


Abnormal sound or vibration



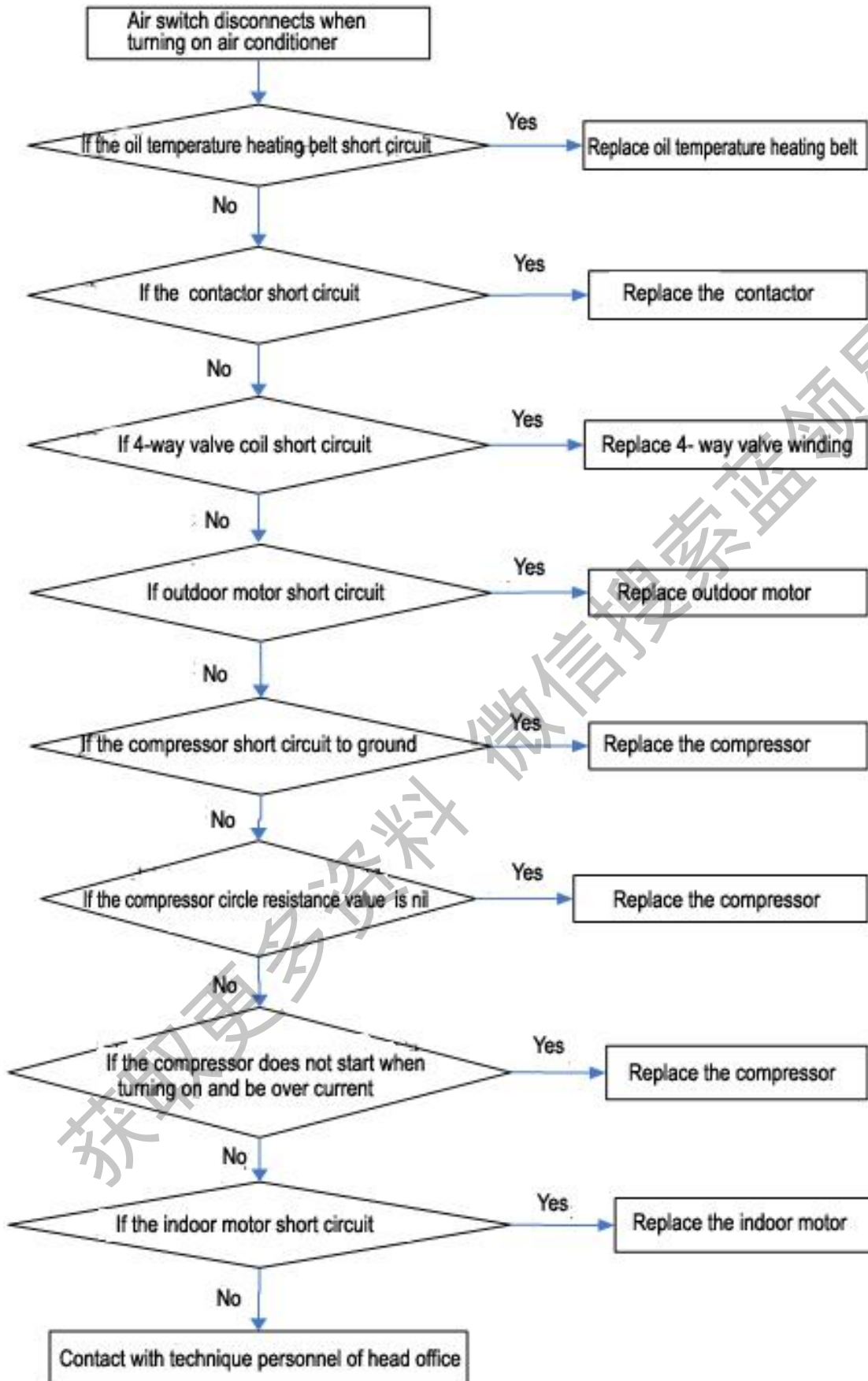


Abnormal odor

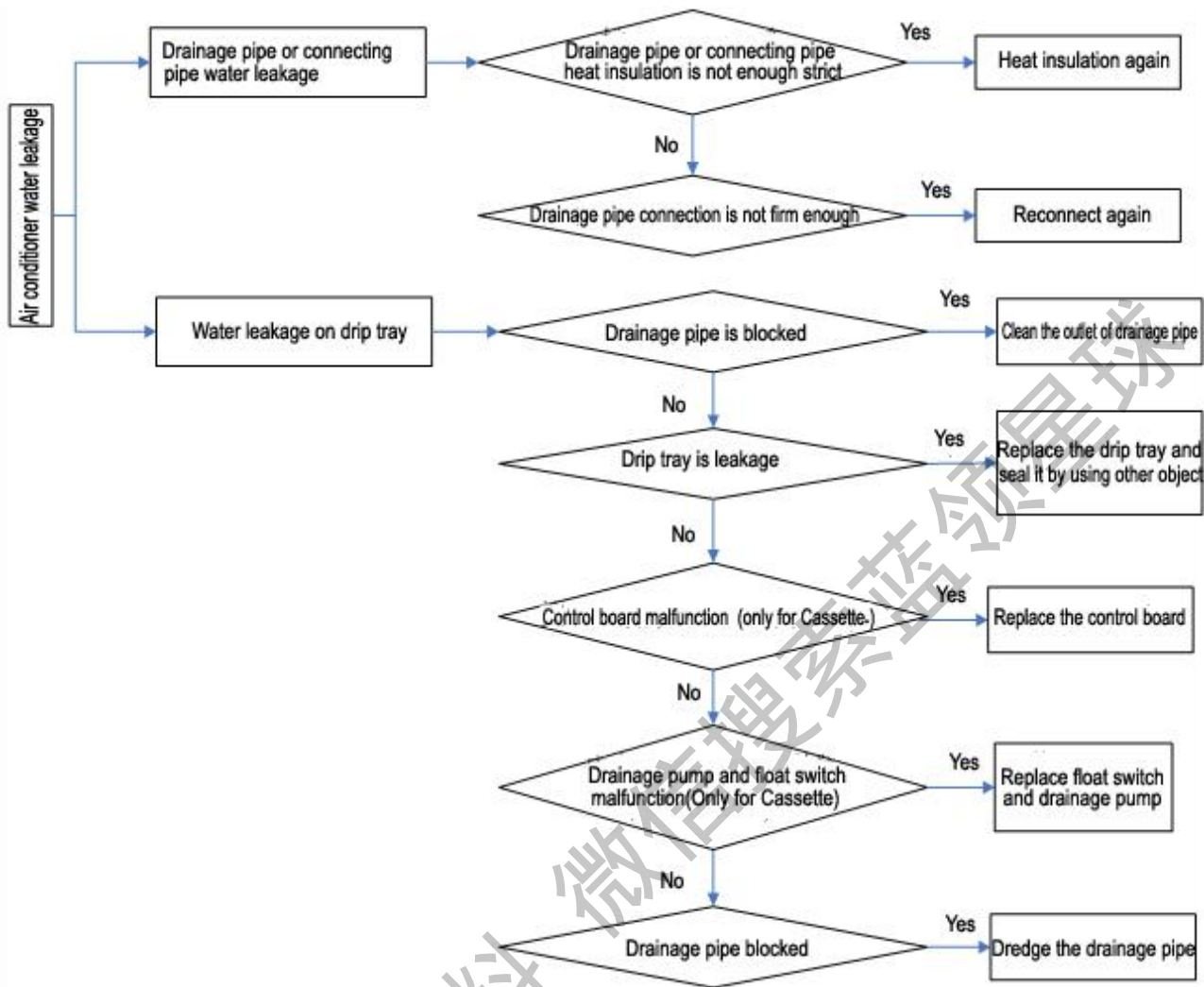


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Air switch action when air conditioner starting up



Air conditioner water leakage






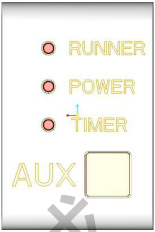


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Part 5 Controller

1. General information


Remote controller, wired controller, display panel and receiver

| | | | | | |
|--|--|--|--|---|---|
| <p>Remote controller, wired controller, display panel and receiver</p> |  |   |  |  |  |
| | <p>Available for all models above</p> | <p>Available for all models above</p> | <p>Available for Cassette indoor unit</p> | <p>Available for Ceiling&Floor indoor unit</p> | <p>Available for Duct indoor unit</p> |
| <p>Note</p> | <p>For Cassette and Ceiling & Floor indoor unit, remote controller is standard and wired controller is optional. For Duct indoor unit wired controller is standard,remote controller is optional(remote controller receiver will be necessaryer).</p> | | | | |

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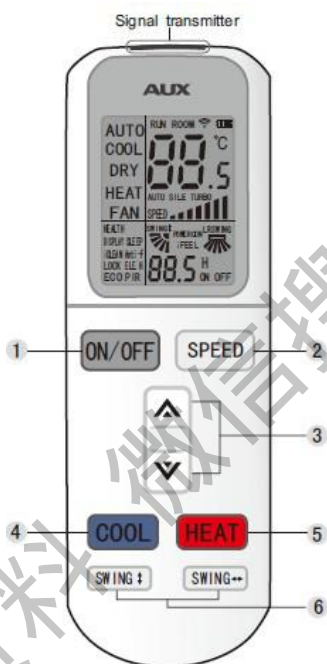
2. Remote Controller

2.1 Basic condition of remote controller

| Name | Figure | Basic condition for operation |
|-------------------|---|--|
| Remote controller |  | 1.Power source Use 2 AAA batteries,working voltage:2.0V-5.0V; 2. Signal frequency:infrared frequency 38kHz; 3. Remote distance:max working distance is7m. |
| | | Key operation introduction: 1.Temperature setting range 16℃ -32℃ ; 2. when heating:When indoor coil temp. is lower than request, the fan will change into low speed,. After the temp. reach to the request temp.,it will change into setting fan speed. |

2.2Function

Remotecontroller: L series



Note:

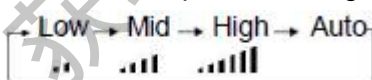
- Remotecontroller outsidebuttons onlyvalidwhensurfacecoverisclosed.
- Twowhitebuttonis onlyforaddressing set. If ithas beensetted,remembernot toresetbyyourself.

1. “ON/OFF”button

*Pressthisbutton,theunitwillstartorstop,whichcan clearthe timer orsleepingfunction oflasttime.

2.“SPEED”button

*Pressthisbutton,speedwillchangeasbelow:



3.“▲/▼” button

*When press▲button, thesetting temperature will be increased by 0.5℃ .When press ▼button, the setting temperaturewill bedecreasedby0.5℃ .

*The temperaturewill bechanged quicklybypressingthe buttoncontinuouslyandsetting temperaturerangeis16℃ to 32℃ .

4.“COOL”button

*PresstheCOOLbutton,youcandirectlyentercooling mode.

5. "HEAT" button

* Press the **HEAT** button, you can directly enter cooling mode.

Note: cooling only unit has no heating function.

6. "SWING" button (SWING ←→ and SWING ↑↓)

* Press this button to startup/down (left/right) swing function, press it again, fix louver position.

* Up/down (left/right) setting is only valid in this mode; it will not affect louver position in other modes.

* Up/down (left/right) swing has memory function, it can keep primary setting when turn off then turn on or switch from other mode to primary mode.

7. "HEALTH" button

* Press this button; you can turn on or off the health function.

8. "SLEEP" button

* Press **SLEEP** button, the sleeping indicator light of indoor unit flashes on.

* The air-conditioner runs in sleeping mode for 10 hours and quiet sleep mode, recover back to former mode.

* The unit will turn off automatically if the timing mode is running out of time.

* **Note:** press the **MODE** or **ON/OFF** button, the remote controller clears sleeping mode away.

9. "iFEEL" button

* Press this button to set "iFEEL" function. The LCD shows the actual room temperature when the function set and it shows the setting temperature when the function cancelled.

* This function is invalid at Fan mode.

10. "DISPLAY" button

* In display mode, press button once, switch off "DISPLAY", Press "DISPLAY" again, LCD will show ambient & setting temperature after flashing 5s. It's convenient for users to check ambient or setting temperature at any time in darkness.

11. "iCLEAN" button

* When remote controller is at the off state, press this button, the unit runs "iCLEAN" function.

* The purpose of this function is to clean dust on evaporator and dry the inside water of evaporator and to prevent the evaporator going moldy due to water deposition and boasting strange smell.

* After setting "iCLEAN" function, press "iCLEAN" button or "ON/OFF" button to quit.

* The clean function will stop working after about 30 minutes running without any operation.

12. "ELE.H" button (for auxiliary electric heating IDU)

* In heating mode, press this button, auxiliary electric heating will work.

13. "Anti-FUNGUS" button

* The purpose of this function is to dry the inside of the evaporator and to prevent the evaporator from going mouldy due to water deposition and thus dispersing strange smell.

* To operate the function: under "off" status of the A/C and

The remote controller, press "**Anti-FUNGUS**" button for

One time, the buzzer keep beeping five times again after five times beep, indicating that the function is ready.

* To cancel the function: 1. under "OFF" status of the A/C and the remote controller, press "**Anti-FUNGUS**" button again.

14. "SPOT SWING" button

* Press this button, the horizontal wind direction vanes can swing automatically, when you have the desired vertical wind direction.

* Press "**SPOT SWING**" again, the horizontal wind direction vanes will be stopped depend on you.

15. "ECO" button

* In cooling mode, press this button, the unit will run "**ECO**" economic operation mode which takes the least power consumption.

* After running for 8h, it will automatically quit. You can press "**ECO**" button once again to quit.

*Note:Theunitwillturnoffautomaticallyifthetimingmodeisrunningout oftime.

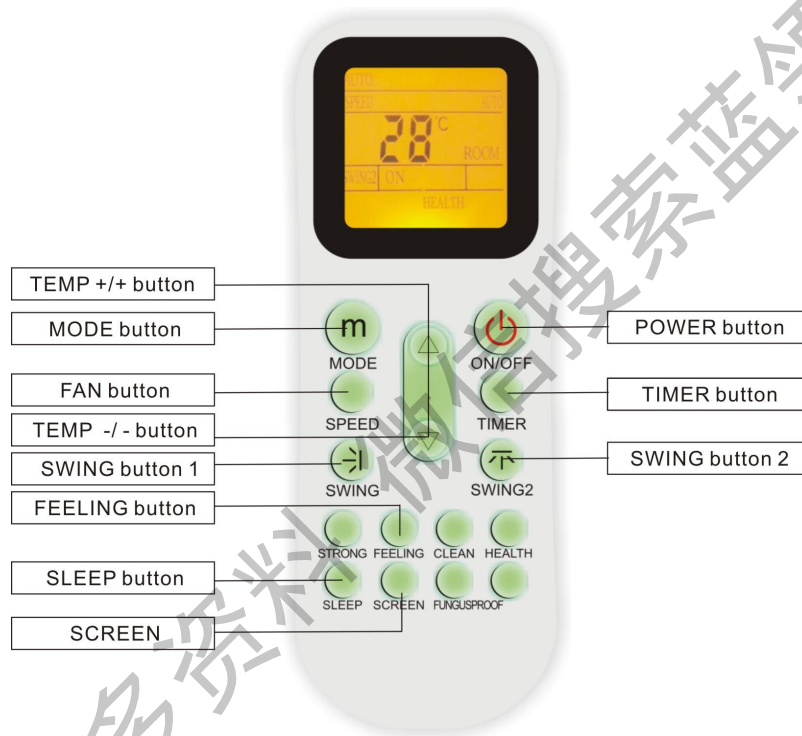
16.Twowhitebutton: Addressing set

*Withthecontroller off, pressing thetwowhite button simultaneouslymorethan10 secondsor more toenter addresssetting.Thisstatusdisplayonlytemperature andtimeparameters,temperaturedisplayare a show“Serialnumber”parameters,therangeis0-99.Time displayareashow“Setvalue”,therangeis0-255.The initialvalueis1.

* By pressing “▲/▼” to set serial number + and -. Parameter within the serial number displays from 0 to 99 in circulation.

* By pressing “ECO” and “iCLEAN” to set value number + and -. Parameters within the value number displays from 0 to 255 in circulation. After setting the two numbers, press the MODE button to confirm sending to ODU.

Remote controller: K series



POWER button: Switch the unit ON/OFF.

MODE button: Select mode , press the button one time, then the operation modes will change in turn as Auto-Cooling-Dehumidify-Heating

TEMP + button and TEMP - button: Temperature adjustment range: 16~32

FAN button: Change the fan speed, press the button one time then the fan speed will change in turn as: Low-Medium-High-Auto

SWING button 1: Press this button for the first time when operation, it will start the up and down swing function. Press the button for the second time, cancel the swing function.

SWING button 2: Press this button for the first time when operation, it will start the right and left swing function. Press the button for the second time, cancel the swing function.

Feeling button: Press this button for setting the feeling function. The LCD shows the actual room temperature when the function is set and it shows the setting temperature when the function is cancelled. The function is invalid in the fan mode.

TIMER/CLOCK button:

Clock Setting: Normally display the clock set currently (display 12:00 for the first electrifying or resetting). When press the button for 5 seconds, the time display zone will flicker, then press【+】 and 【-】 button to adjust hour that uses 12-hour clock including “A.M.” and “P.M.” time; press the button again to complete the setting.

Timer setting: Press the button to set TIMER ON/OFF , press the button then “ON” will flicker on the display screen. then press【+】 and 【-】 button to adjust timing time; press the button again to complete the setting. The “OFF” setting is the same methods.

Remark: When setting functions such as mode, temperature, fan speed, display screen displays all presetting parameters and remains constant; after reaching presetting time, air conditioner will automatically start as per presetting state.

After setting timing ON and OFF function, pressing button of 【Timer/Clock】 can cancel timing setting.

SLEEP button:

1. Press the button to the sleeping indicator light of indoor unit flashes on;
2. In sleeping mode,the cooling operation enables the set temperature to increase 1°C after 1 hour and another 1°C auto matically after 1hour.
3. In sleeping mode,the heating operation enables the set temperature to drop 2°C after 1 hour and another 2°C auto matically after 1hour.

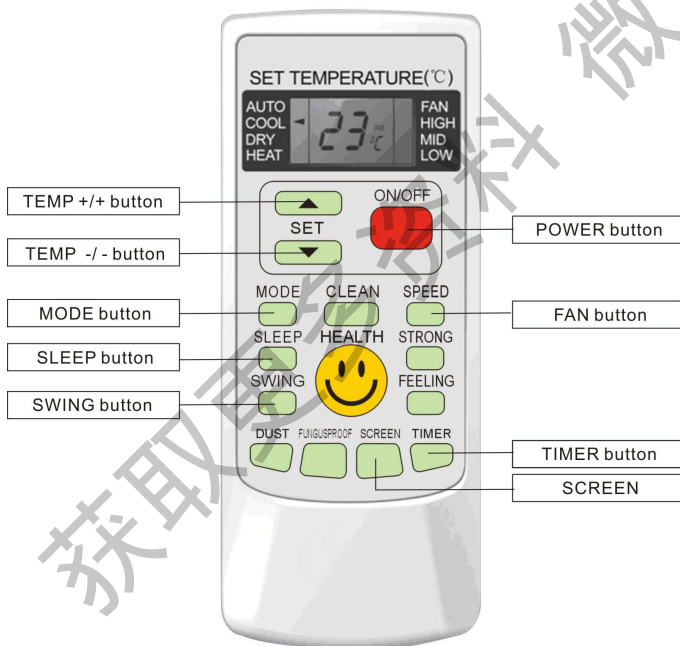
The air conditioner will cancel sleeping mode automatically after running in this mode for 7 hours.

4. **Remark:**

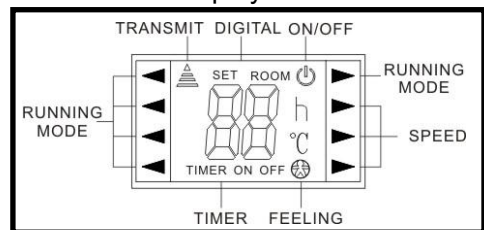
Press the mode or ON/OFF button,the remote controller will cancel sleeping mode.

SCREEN button:Press the button to let the LCD display working or not.

Remote conntroller:H series



LCD display instruction



NOTE:

ON/OFF display:

when the remote controller is on the state, the LCD will be display or not.

Digital display:

Under normal working state, it displays setting temperature. While the feeling function is start, it will display room temperature, and under the state of timer mode, it will display setting timer.

NOTE:

Fan speed operation

When the air volume is greater, the noisewill be higher, The wind temperature willrise when cooling mode,and drop whenheating mode; Please selecte the appropriate Fan speed, to achieve the more

POWER button:Switch the unit ON/OFF.

MODE button:Select mode , push the button one time, then the Auto-Cooling-Dehumidify-Heating

TEMP + button and TEMP - button: Temperature adjustment range: 16~32

FAN button: Change the fan speed will change in turn as: Low-Medium-High-Auto

SWING button: Press this button for the first time when operation, it will start the swing function. Push the button for the second time, cancel the swing function. (The function is available matched with the concerned unit)

TIMER/CLOCK button:

Clock Setting: Normally display the clock set currently (display 12:00 for the first electrifying or resetting). When press the button for 5 seconds, the time display zone will flicker, then press【+】 and 【-】 button and to adjust hour that uses 12-hour clock including “A.M.” and “P.M.” time; press the button again to complete the setting.

Timer setting: Press the button to set TIMER ON/OFF , press the button then “ON” will flicker on the display screen. then press【+】 and 【-】 button and to adjust hour that uses 12-hour clock including “A.M.” and “P.M.” time; press the button again to complete the setting. The “OFF” setting is the same methods.

Remark: When setting functions such as mode, temperature, air port and air velocity, display screen displays all presetting parameters and remains constant; after reaching presetting time, air conditioner will automatically start as per presetting state.

After setting timing ON and OFF function, pressing button of 【Timer/Clock】 can cancel timing setting.

SLEEP button:


1. Press the button to the sleeping indicator light of indoor unit flashes on;
2. After the setting of sleeping mode, the cooling operation enables the set temperature to increase 1°C after 1 hour and another 1°C automatically after 1hour.
3. After the setting of sleeping mode, the heating operation enables the set temperature to drop 2°C after 1 hour and another 2°C automatically after 1hour.
4. The air condition runs in sleeping mode for 7hours and stops automatically.

Remark: Press the mode or ON/OFF button, the remote controller clears sleeping mode away.

SCREEN button: Press the button to let the LCD display working or not by pressing the button.

3. Wired controller

3.1 Basic condition of wired controller

| Name | Figure | Basic condition for operation |
|------------------|---|--|
| Wired controller |  | 1. Power source:voltage DC 12V; 2. Work temperature range of PCB:(-10~+70)°C; 3. Work humidity range of PCB:RH20%~RH90%; |

3.2 Function

Wired controller: XK-02



ON/OFF button: Switch the unit ON/OFF.

Mode button: Select mode , press the button one time, then the operation modes will change in turn as below: Auto-Cooling-Dehumidify-Heating 

Temp +/- button: Press the button can adjust temperature.

Fan button: Change the fan speed in turn as :Auto-Low-Medium-High-Auto

Swing button: Press this button for the first time when operation will start the swing function. Press the button for the second time will cancel the swing function. (The function is available matched with the concerned unit)

Health button: Press this button to enter health mode.

SLEEP button:

1. Press the button then the sleeping indicator light of indoor unit will flash on;

2. In sleeping mode, the cooling operation enables the set temperature to increase 1°C after 1 hour and another 1°C automatically after 1 hour.
3. In sleeping mode, the heating operation enables the set temperature to drop 2°C after 1 hour and another 2°C automatically after 1 hour.
4. The air conditioner runs in sleeping mode for 7 hours and then cancel sleeping mode automatically.

Remark: Press the mode or ON/OFF button can cancel sleeping mode.

Timer button: Press the button to set Timer ON/OFF, press the button then “ON” will flicker on the display screen. then press 【Clock +/- button】 and to adjust timing time; press the button again to complete the setting. The “OFF” setting is the same methods.

Remark: When setting functions such as mode, temperature, swing and fan speed, display screen displays all presetting parameters and remains constant; after reaching presetting time, air conditioner will automatically start as per presetting state.

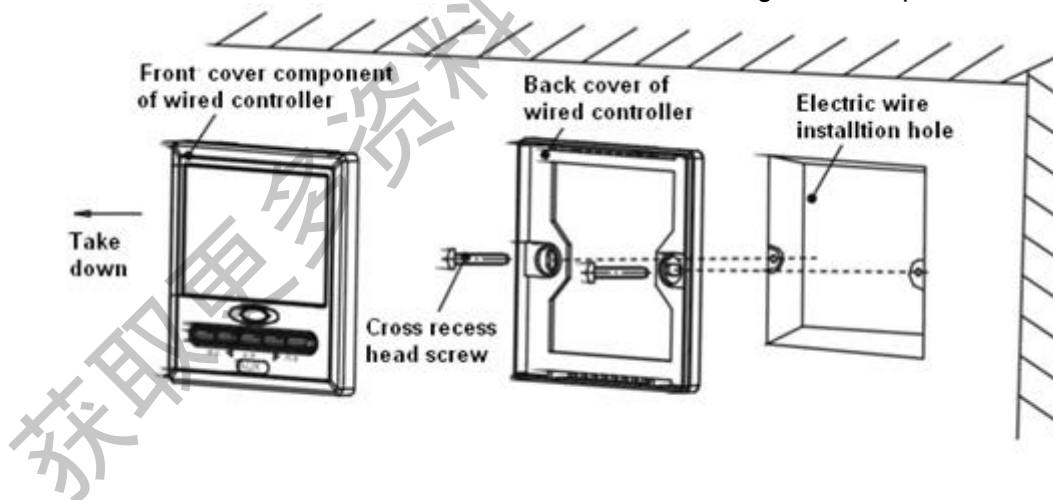
After setting timing ON and OFF function, pressing button of 【Timer】 can cancel timing setting.

Notes:

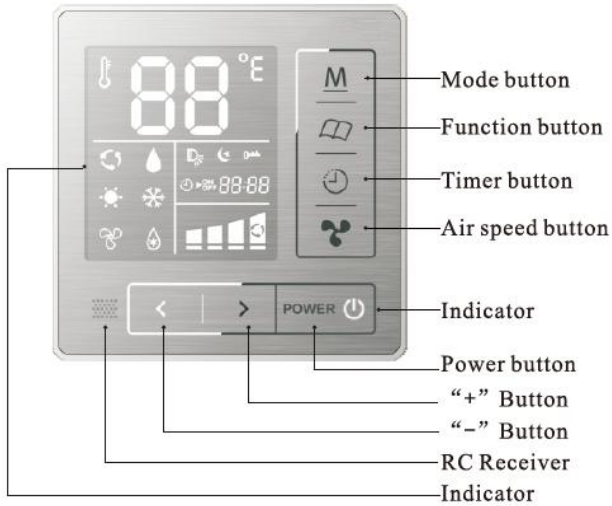
1. Time sequence of timing ON and OFF determines the order of “Timing ON-Timer OFF” and “Timer OFF- Timing ON”. If the both are the same or either one is the same as time of current clock, it is invalid to press “Timer” button to confirm presetting time; after it reaches the presetting time, it will implement corresponding timing operation.
2. After setting time of timing ON and OFF, pressing “Timer” button can cancel timing.
3. Enter into time setting state of timing function; if there is no input related to time within consecutive 10 seconds, cancel the operation, return to previous state and go on with current time.
4. Default time of timer ON is 08:00 and default time of timer OFF is 18:00.

3.3 Installation of wired controller

- ◇ First, take apart the base panel from the wired controller.;
- ◇ According to the two installation holes on the install board, use two screws to fix the base panel to the wall as shown below;
- ◇ Ensure that the connecting cable of the controller is accessible before connecting the wired controller to the base panel.;
- ◇ Join the wired controller connection cable to the indoor unit using the cable provided.



Wired controller: XK-05



Note: As these are touch buttons, please touch the center of each button to ensure it work effectively.
For example the “POWER” button shall be pressed on the letter “W”.

1. “POWER” button--On/Off button

Press “POWER” button after connecting the power, this will turn on the operation indicator and set the air conditioner to operation mode. Pressing “POWER” button again will turn off the operation indicator and set the air conditioner to standby mode.

2. “>” button and “<” button-- plus and minus buttons

- Depending on functions in different pages, pressing “>” or “<” buttons may be required for setting temperature, time and other parameters.
- When setting time, you may want to speed up the process by pressing and holding “>” or “<” for 2 seconds.
- If the “>” and “<” buttons are pressed simultaneously for 5 seconds or more, The control will be locked, displaying “🔒”. No button operation (the receiver for remote control is still working) is possible when the control is locked.
- To unlock the control: Press “>” and “<” buttons simultaneously for 5 seconds or more, or turn on the power after turning it off (“🔒” will be canceled).

Note: Each press of the “>” button adds the value by 1; Each press of the “<” button minus the value by 1.

3. “M” button--Mode button

By pressing “M”, you can switch the operation modes in the following sequence: [Auto 🌀] → [Cool ❄️] → [Dry 💧] → [Fan 🌀] → [Heat 🔥] → [Auto 🌀]. The initial temperature of each mode is set at 24°C. There is no set temperature under VENT mode and no automatic air flow under FAN mode.


Note: For units with which some of the above modes are not available, the sequence of the remaining modes is the same as those with all modes.


4. “📖” --Functional Buttons

- Sleep function setting
After the unit is turned on, each press of the “📖” button will activate the sleep function (the display of “🌙” indicates the sleep function is activated).


5. “” --Timer button

●Press “” button once:


If the unit is turned on, the wire control will be switched to OFF time setting mode and display “ OFF” .



If the unit is turned off, the wire control will be switched to ON time setting mode and display “ OFF” .

When in time setting mode, the time column will display default time setting (4 hours after current time). Then, readjust the set time by pressing “<” or “>” button (holding those buttons can accelerate the adjustment).







Press the “” button again to confirm the setting, which will stop the flicker of the time column.


Note: If no button is pressed for 10 continuous seconds, the time setting will be canceled and the timer will return to where there is no time setting.

Pressing “” again or “**POWER**” after the setting is finished will quit the time setting. The corresponding timer icon will go out and the time column will display the system time.

●By pressing and holding “” button for 5 seconds, you can adjust the clock according to current time (“:00”) Press the “<” or “>” to add or minus the hour with hour auto-increment (holding those buttons can accelerate the adjustment).

6. “” Button--Air Speed Button

By pressing “” , you can switch the air speeds in the following sequence [Auto ] → [Low ] → [Med ] → [High ] → [Auto ] :

During forced operation, the air speed will be displayed as [Auto ] .

7. Indicator

It is used for indicating operation conditions.

When the unit is turned on: When the unit is in operation, the indicator will remain light; or it will start to “breathe” (become bright and dim alternatively) if there is no operation for 10 seconds.

When the unit is turned off: The indicator will go out.

8.Remote control receiver.

It is used for receiving remote control signals.

When operating, aim the emitter of remote controller toward the receiver within 8m away and send operation orders.



9. Other Functions

●Swing function

Start or stop the swing function after the remote control order is received.

The corresponding swing icon “” glows or goes out.


●Sleep function

This function can be set with “” (see the operation instruction of “” button for details) or remote controller after the unit is turned on.

●Lock Function

See the operation instruction of “>” and “<” buttons.

●Defrosting or oil return

When the “” symbol glows, the unit is in the process of automatic defrosting or oil return. This is not a failure of the unit.

●Trouble code display

When the screen displays the interface as shown in figure 1, the unit is reporting a trouble, with the temperature column displaying directly the trouble code, based on which the user may report the trouble to the local service department for repair.

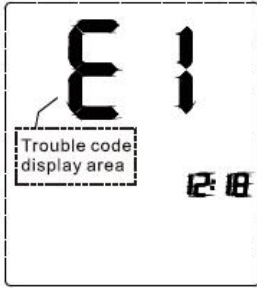


Figure 1) Trouble code display

Installation of wired controller

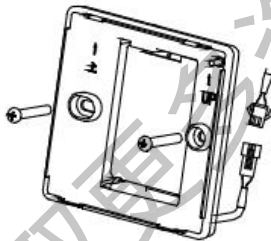
1. Installation Diagram

Step 1: Disconnect the power.

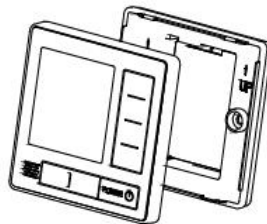
Step 2: Open the upper cover by turning the slot at the lower end of the wire control using a flat head screwdriver. If there are two control panels, pull off the wires between them.



Step 3: Connect the wires. Fasten the lower cover into the in the internal box inside the wall according to the direction shown (with the arrow pointing up) using the screws provided in the package box.



Step 4: Click the upper cover onto the lower cover according to the direct shown. If there are two control panels, connect the wire between them before closing the covers.



Part 6. Sensor resistance table

1.Coil temperature sensor resistance reference table

| R25=20KΩ±1% | | | | | | | |
|------------------|-----------------|--------------|---------|--------------|--------|--------------|--------|
| B25/50=3950K ±1% | | | | | | | |
| Temp | resistance (KΩ) | | | (resist.tol) | | (temp.tol)°C | |
| (°C) | Rmax | R (t) Normal | Rmin | MAX(+) | MIN(-) | MAX(+) | MIN(-) |
| -30 | 377.571 | 347.000 | 318.338 | 8.81 | 8.26 | 1.36 | 1.36 |
| -29 | 354.642 | 326.228 | 299.608 | 8.71 | 8.16 | 1.35 | 1.35 |
| -28 | 333.353 | 306.927 | 282.189 | 8.61 | 8.06 | 1.33 | 1.33 |
| -27 | 313.547 | 288.957 | 265.927 | 8.51 | 7.97 | 1.32 | 1.32 |
| -26 | 295.088 | 272.196 | 250.774 | 8.41 | 7.87 | 1.31 | 1.31 |
| -25 | 277.860 | 256.541 | 236.582 | 8.31 | 7.78 | 1.30 | 1.30 |
| -24 | 261.761 | 241.901 | 223.323 | 8.21 | 7.68 | 1.29 | 1.29 |
| -23 | 246.699 | 228.193 | 210.873 | 8.11 | 7.59 | 1.27 | 1.27 |
| -22 | 232.598 | 215.349 | 199.219 | 8.01 | 7.49 | 1.26 | 1.26 |
| -21 | 219.385 | 203.304 | 188.260 | 7.91 | 7.40 | 1.25 | 1.25 |
| -20 | 206.995 | 192.000 | 177.984 | 7.81 | 7.30 | 1.24 | 1.24 |
| -19 | 195.360 | 181.376 | 168.317 | 7.71 | 7.20 | 1.23 | 1.23 |
| -18 | 184.441 | 171.398 | 159.212 | 7.61 | 7.11 | 1.21 | 1.21 |
| -17 | 174.193 | 162.025 | 150.667 | 7.51 | 7.01 | 1.20 | 1.20 |
| -16 | 164.568 | 153.215 | 142.613 | 7.41 | 6.92 | 1.19 | 1.19 |
| -15 | 155.527 | 144.932 | 135.048 | 7.31 | 6.82 | 1.17 | 1.18 |
| -14 | 147.029 | 137.141 | 127.911 | 7.21 | 6.73 | 1.16 | 1.17 |
| -13 | 138.912 | 129.812 | 121.205 | 7.01 | 6.63 | 1.15 | 1.15 |
| -12 | 131.406 | 122.913 | 114.874 | 6.91 | 6.54 | 1.14 | 1.14 |
| -11 | 124.346 | 116.418 | 108.921 | 6.81 | 6.44 | 1.12 | 1.13 |
| -10 | 117.701 | 110.300 | 103.307 | 6.71 | 6.34 | 1.11 | 1.12 |
| -9 | 111.446 | 104.536 | 98.003 | 6.61 | 6.25 | 1.10 | 1.11 |
| -8 | 105.556 | 99.104 | 93.009 | 6.51 | 6.15 | 1.08 | 1.09 |
| -7 | 100.007 | 93.983 | 88.288 | 6.41 | 6.06 | 1.07 | 1.08 |
| -6 | 94.780 | 89.154 | 83.840 | 6.31 | 5.96 | 1.06 | 1.07 |
| -5 | 89.852 | 84.598 | 79.632 | 6.21 | 5.87 | 1.05 | 1.06 |
| -4 | 85.124 | 80.298 | 75.665 | 6.01 | 5.77 | 1.03 | 1.05 |
| -3 | 80.746 | 76.240 | 71.910 | 5.91 | 5.68 | 1.02 | 1.03 |
| -2 | 76.615 | 72.408 | 68.368 | 5.81 | 5.58 | 1.01 | 1.02 |
| -1 | 72.717 | 68.789 | 65.019 | 5.71 | 5.48 | 1.00 | 1.01 |
| 0 | 69.037 | 65.370 | 61.847 | 5.61 | 5.39 | 0.98 | 1.00 |
| 1 | 65.563 | 62.139 | 58.852 | 5.51 | 5.29 | 0.97 | 0.99 |
| 2 | 62.280 | 59.084 | 56.012 | 5.41 | 5.2 | 0.96 | 0.97 |
| 3 | 59.180 | 56.196 | 53.330 | 5.31 | 5.1 | 0.94 | 0.96 |
| 4 | 56.248 | 53.463 | 50.785 | 5.21 | 5.01 | 0.93 | 0.95 |
| 5 | 53.428 | 50.879 | 48.381 | 5.01 | 4.91 | 0.92 | 0.94 |
| 6 | 50.810 | 48.432 | 46.098 | 4.91 | 4.82 | 0.91 | 0.93 |
| 7 | 48.335 | 46.117 | 43.940 | 4.81 | 4.72 | 0.89 | 0.91 |
| 8 | 45.993 | 43.924 | 41.895 | 4.71 | 4.62 | 0.88 | 0.90 |
| 9 | 43.776 | 41.847 | 39.951 | 4.61 | 4.53 | 0.87 | 0.89 |
| 10 | 41.678 | 39.879 | 38.112 | 4.51 | 4.43 | 0.86 | 0.88 |

| | | | | | | | |
|----|--------|--------|--------|------|------|------|------|
| 11 | 39.691 | 38.015 | 36.365 | 4.41 | 4.34 | 0.84 | 0.87 |
| 12 | 37.809 | 36.247 | 34.710 | 4.31 | 4.24 | 0.83 | 0.85 |
| 13 | 36.026 | 34.571 | 33.136 | 4.21 | 4.15 | 0.82 | 0.84 |
| 14 | 34.338 | 32.982 | 31.646 | 4.11 | 4.05 | 0.80 | 0.83 |
| 15 | 32.736 | 31.474 | 30.228 | 4.01 | 3.96 | 0.79 | 0.82 |
| 16 | 31.218 | 30.043 | 28.883 | 3.91 | 3.86 | 0.78 | 0.81 |
| 17 | 29.778 | 28.685 | 27.606 | 3.81 | 3.76 | 0.77 | 0.79 |
| 18 | 28.411 | 27.395 | 26.390 | 3.71 | 3.67 | 0.75 | 0.78 |
| 19 | 27.115 | 26.170 | 25.236 | 3.61 | 3.57 | 0.74 | 0.77 |
| 20 | 25.885 | 25.007 | 24.137 | 3.51 | 3.48 | 0.73 | 0.76 |
| 21 | 24.717 | 23.902 | 23.094 | 3.41 | 3.38 | 0.72 | 0.75 |
| 22 | 23.607 | 22.851 | 22.099 | 3.31 | 3.29 | 0.70 | 0.73 |
| 23 | 22.554 | 21.853 | 21.156 | 3.21 | 3.19 | 0.69 | 0.72 |
| 24 | 21.553 | 20.903 | 20.255 | 3.11 | 3.1 | 0.68 | 0.71 |
| 25 | 20.600 | 20.000 | 19.400 | 3.00 | 3.00 | 0.66 | 0.70 |
| 26 | 19.734 | 19.141 | 18.549 | 3.10 | 3.09 | 0.69 | 0.72 |
| 27 | 18.909 | 18.323 | 17.739 | 3.20 | 3.19 | 0.72 | 0.75 |
| 28 | 18.123 | 17.545 | 16.970 | 3.30 | 3.28 | 0.74 | 0.78 |
| 29 | 17.374 | 16.804 | 16.238 | 3.40 | 3.37 | 0.77 | 0.80 |
| 30 | 16.660 | 16.098 | 15.541 | 3.49 | 3.46 | 0.80 | 0.83 |
| 31 | 15.979 | 15.426 | 14.879 | 3.59 | 3.55 | 0.82 | 0.85 |
| 32 | 15.329 | 14.785 | 14.248 | 3.68 | 3.63 | 0.85 | 0.88 |
| 33 | 14.709 | 14.175 | 13.647 | 3.77 | 3.72 | 0.88 | 0.91 |
| 34 | 14.117 | 13.593 | 13.075 | 3.86 | 3.80 | 0.90 | 0.93 |
| 35 | 13.553 | 13.038 | 12.531 | 3.95 | 3.89 | 0.93 | 0.96 |
| 36 | 13.013 | 12.508 | 12.012 | 4.04 | 3.97 | 0.95 | 0.98 |
| 37 | 12.499 | 12.003 | 11.517 | 4.13 | 4.05 | 0.98 | 1.01 |
| 38 | 12.007 | 11.521 | 11.045 | 4.21 | 4.13 | 1.01 | 1.04 |
| 39 | 11.537 | 11.062 | 10.595 | 4.30 | 4.21 | 1.03 | 1.06 |
| 40 | 11.088 | 10.622 | 10.166 | 4.38 | 4.29 | 1.06 | 1.09 |
| 41 | 10.659 | 10.203 | 9.757 | 4.46 | 4.37 | 1.09 | 1.11 |
| 42 | 10.248 | 9.803 | 9.367 | 4.55 | 4.45 | 1.11 | 1.14 |
| 43 | 9.856 | 9.420 | 8.994 | 4.63 | 4.52 | 1.14 | 1.17 |
| 44 | 9.480 | 9.054 | 8.638 | 4.71 | 4.60 | 1.17 | 1.19 |
| 45 | 9.121 | 8.705 | 8.298 | 4.79 | 4.67 | 1.19 | 1.22 |
| 46 | 8.778 | 8.371 | 7.973 | 4.86 | 4.75 | 1.22 | 1.24 |
| 47 | 8.449 | 8.051 | 7.663 | 4.94 | 4.82 | 1.24 | 1.27 |
| 48 | 8.134 | 7.745 | 7.367 | 5.02 | 4.89 | 1.27 | 1.30 |
| 49 | 7.832 | 7.453 | 7.083 | 5.09 | 4.96 | 1.30 | 1.32 |
| 50 | 7.543 | 7.173 | 6.812 | 5.16 | 5.03 | 1.32 | 1.35 |
| 51 | 7.267 | 6.905 | 6.553 | 5.24 | 5.10 | 1.35 | 1.37 |
| 52 | 7.002 | 6.649 | 6.305 | 5.31 | 5.17 | 1.38 | 1.40 |
| 53 | 6.747 | 6.403 | 6.068 | 5.38 | 5.24 | 1.40 | 1.43 |
| 54 | 6.504 | 6.168 | 5.841 | 5.45 | 5.30 | 1.43 | 1.45 |
| 55 | 6.270 | 5.942 | 5.623 | 5.52 | 5.37 | 1.46 | 1.48 |
| 56 | 6.046 | 5.726 | 5.415 | 5.59 | 5.43 | 1.48 | 1.50 |

| | | | | | | | |
|-----|-------|-------|-------|------|------|------|------|
| 57 | 5.831 | 5.519 | 5.216 | 5.66 | 5.50 | 1.51 | 1.53 |
| 58 | 5.625 | 5.321 | 5.025 | 5.72 | 5.56 | 1.53 | 1.56 |
| 59 | 5.428 | 5.131 | 4.842 | 5.79 | 5.62 | 1.56 | 1.58 |
| 60 | 5.238 | 4.948 | 4.667 | 5.86 | 5.69 | 1.59 | 1.61 |
| 61 | 5.055 | 4.773 | 4.499 | 5.92 | 5.75 | 1.61 | 1.63 |
| 62 | 4.880 | 4.605 | 4.338 | 5.98 | 5.81 | 1.64 | 1.66 |
| 63 | 4.712 | 4.444 | 4.183 | 6.05 | 5.87 | 1.67 | 1.68 |
| 64 | 4.551 | 4.289 | 4.035 | 6.11 | 5.93 | 1.69 | 1.71 |
| 65 | 4.396 | 4.140 | 3.893 | 6.17 | 5.98 | 1.72 | 1.74 |
| 66 | 4.247 | 3.998 | 3.756 | 6.23 | 6.04 | 1.75 | 1.76 |
| 67 | 4.103 | 3.861 | 3.625 | 6.29 | 6.10 | 1.77 | 1.79 |
| 68 | 3.966 | 3.729 | 3.500 | 6.35 | 6.15 | 1.80 | 1.81 |
| 69 | 3.833 | 3.603 | 3.379 | 6.41 | 6.21 | 1.82 | 1.84 |
| 70 | 3.706 | 3.481 | 3.263 | 6.46 | 6.26 | 1.85 | 1.87 |
| 71 | 3.583 | 3.364 | 3.152 | 6.52 | 6.32 | 1.88 | 1.89 |
| 72 | 3.466 | 3.252 | 3.045 | 6.58 | 6.37 | 1.90 | 1.92 |
| 73 | 3.352 | 3.144 | 2.942 | 6.63 | 6.42 | 1.93 | 1.94 |
| 74 | 3.243 | 3.040 | 2.843 | 6.68 | 6.47 | 1.96 | 1.97 |
| 75 | 3.138 | 2.940 | 2.748 | 6.74 | 6.53 | 1.98 | 2.00 |
| 76 | 3.037 | 2.844 | 2.657 | 6.79 | 6.58 | 2.01 | 2.02 |
| 77 | 2.940 | 2.751 | 2.569 | 6.84 | 6.63 | 2.04 | 2.05 |
| 78 | 2.846 | 2.662 | 2.485 | 6.89 | 6.67 | 2.06 | 2.07 |
| 79 | 2.756 | 2.577 | 2.403 | 6.95 | 6.72 | 2.09 | 2.10 |
| 80 | 2.669 | 2.494 | 2.325 | 7.00 | 6.77 | 2.11 | 2.13 |
| 81 | 2.585 | 2.415 | 2.250 | 7.04 | 6.82 | 2.14 | 2.15 |
| 82 | 2.504 | 2.338 | 2.178 | 7.09 | 6.86 | 2.17 | 2.18 |
| 83 | 2.426 | 2.264 | 2.108 | 7.14 | 6.91 | 2.19 | 2.20 |
| 84 | 2.351 | 2.193 | 2.041 | 7.19 | 6.96 | 2.22 | 2.23 |
| 85 | 2.279 | 2.125 | 1.976 | 7.24 | 7.00 | 2.25 | 2.26 |
| 86 | 2.209 | 2.059 | 1.914 | 7.28 | 7.04 | 2.27 | 2.28 |
| 87 | 2.142 | 1.995 | 1.854 | 7.33 | 7.09 | 2.30 | 2.31 |
| 88 | 2.077 | 1.934 | 1.796 | 7.37 | 7.13 | 2.33 | 2.33 |
| 89 | 2.014 | 1.875 | 1.740 | 7.42 | 7.17 | 2.35 | 2.36 |
| 90 | 1.954 | 1.818 | 1.687 | 7.46 | 7.22 | 2.38 | 2.39 |
| 91 | 1.895 | 1.763 | 1.635 | 7.50 | 7.26 | 2.41 | 2.41 |
| 92 | 1.839 | 1.710 | 1.585 | 7.55 | 7.30 | 2.43 | 2.44 |
| 93 | 1.785 | 1.659 | 1.537 | 7.59 | 7.34 | 2.46 | 2.46 |
| 94 | 1.732 | 1.609 | 1.490 | 7.63 | 7.38 | 2.48 | 2.49 |
| 95 | 1.681 | 1.561 | 1.446 | 7.68 | 7.43 | 2.51 | 2.52 |
| 96 | 1.632 | 1.515 | 1.402 | 7.72 | 7.47 | 2.54 | 2.54 |
| 97 | 1.585 | 1.471 | 1.360 | 7.76 | 7.51 | 2.56 | 2.57 |
| 98 | 1.539 | 1.428 | 1.320 | 7.80 | 7.55 | 2.59 | 2.59 |
| 99 | 1.495 | 1.386 | 1.281 | 7.85 | 7.59 | 2.62 | 2.62 |
| 100 | 1.452 | 1.346 | 1.243 | 7.89 | 7.63 | 2.64 | 2.64 |
| 101 | 1.411 | 1.307 | 1.207 | 7.93 | 7.68 | 2.67 | 2.67 |
| 102 | 1.371 | 1.270 | 1.172 | 7.98 | 7.72 | 2.70 | 2.70 |

| | | | | | | | |
|-----|-------|-------|-------|------|------|------|------|
| 103 | 1.332 | 1.233 | 1.137 | 8.02 | 7.76 | 2.72 | 2.72 |
| 104 | 1.295 | 1.198 | 1.104 | 8.07 | 7.81 | 2.75 | 2.75 |
| 105 | 1.258 | 1.164 | 1.070 | 8.11 | 8.11 | 2.77 | 2.77 |

2. Environment temperature sensor resistance reference table

| R25 = 15.0 KΩ ± 3% | | | | | | | |
|---------------------|-----------|-------|-------|--------|-----------|-------|-------|
| B25/50 = 3950K ± 2% | | | | | | | |
| T [°C] | Rmin [KΩ] | | | T [°C] | Rmin [KΩ] | | |
| -25.0 | 183.4 | 199.1 | 216.0 | -8.0 | 70.54 | 75.10 | 79.88 |
| -24.5 | 178.0 | 193.1 | 209.4 | -7.5 | 68.69 | 73.10 | 77.71 |
| -24.0 | 172.8 | 187.4 | 203.0 | -7.0 | 66.90 | 71.15 | 75.61 |
| -23.5 | 167.8 | 181.8 | 196.9 | -6.5 | 65.17 | 69.27 | 73.57 |
| -23.0 | 162.9 | 176.5 | 190.9 | -6.0 | 63.48 | 67.44 | 71.59 |
| -22.5 | 158.2 | 171.3 | 185.2 | -5.5 | 61.84 | 65.67 | 69.66 |
| -22.0 | 153.7 | 166.2 | 179.6 | -5.0 | 60.25 | 63.95 | 67.80 |
| -21.5 | 149.3 | 161.4 | 174.3 | -4.5 | 58.71 | 62.27 | 65.99 |
| -21.0 | 145.0 | 156.7 | 169.1 | -4.0 | 57.21 | 60.65 | 64.24 |
| -20.5 | 140.9 | 152.1 | 164.1 | -3.5 | 55.75 | 59.08 | 62.54 |
| -20.0 | 136.9 | 147.7 | 159.2 | -3.0 | 54.34 | 57.55 | 60.89 |
| -19.5 | 133.0 | 143.4 | 154.6 | -2.5 | 52.96 | 56.06 | 59.29 |
| -19.0 | 129.2 | 139.3 | 150.0 | -2.0 | 51.63 | 54.62 | 57.73 |
| -18.5 | 125.6 | 135.3 | 145.6 | -1.5 | 50.33 | 53.22 | 56.22 |
| -18.0 | 122.1 | 131.4 | 141.4 | -1.0 | 49.07 | 51.86 | 54.76 |
| -17.5 | 118.7 | 127.7 | 137.3 | -0.5 | 47.84 | 50.54 | 53.33 |
| -17.0 | 115.4 | 124.1 | 133.3 | 0.0 | 46.65 | 49.25 | 51.95 |
| -16.5 | 112.2 | 120.6 | 129.5 | 0.5 | 45.49 | 48.00 | 50.61 |
| -16.0 | 109.1 | 117.2 | 125.7 | 1.0 | 44.37 | 46.79 | 49.31 |
| -15.5 | 106.1 | 113.9 | 122.1 | 1.5 | 43.27 | 45.61 | 48.04 |
| -15.0 | 103.1 | 110.7 | 118.6 | 2.0 | 42.21 | 44.47 | 46.81 |
| -14.5 | 100.3 | 107.6 | 115.3 | 2.5 | 41.17 | 43.36 | 45.62 |
| -14.0 | 97.59 | 104.6 | 112.0 | 3.0 | 40.17 | 42.28 | 44.46 |
| -13.5 | 94.94 | 101.7 | 108.8 | 3.5 | 39.19 | 41.23 | 43.33 |
| -13.0 | 92.37 | 98.88 | 105.8 | 4.0 | 38.24 | 40.20 | 42.24 |
| -12.5 | 89.87 | 96.16 | 102.8 | 4.5 | 37.31 | 39.21 | 41.17 |
| -12.0 | 87.45 | 93.52 | 99.92 | 5.0 | 36.41 | 38.25 | 40.14 |
| -11.5 | 85.11 | 90.96 | 97.13 | 5.5 | 35.53 | 37.31 | 39.13 |
| -11.0 | 82.83 | 88.48 | 94.43 | 6.0 | 34.68 | 36.39 | 38.16 |
| -10.5 | 80.63 | 86.07 | 91.81 | 6.5 | 33.85 | 35.51 | 37.21 |
| -10.0 | 78.48 | 83.74 | 89.27 | 7.0 | 33.05 | 34.64 | 36.29 |
| -9.5 | 76.41 | 81.48 | 86.82 | 7.5 | 32.26 | 33.80 | 35.39 |
| -9.0 | 74.39 | 79.29 | 84.43 | 8.0 | 31.50 | 32.99 | 34.52 |
| -8.5 | 72.43 | 77.16 | 82.12 | 8.5 | 30.75 | 32.19 | 33.67 |
| 9.0 | 30.03 | 31.42 | 32.84 | 32.0 | 10.69 | 11.09 | 11.49 |
| 9.5 | 29.33 | 30.67 | 32.04 | 32.5 | 10.47 | 10.86 | 11.26 |
| 10.0 | 28.64 | 29.94 | 31.26 | 33.0 | 10.24 | 10.63 | 11.03 |
| 10.5 | 27.97 | 29.22 | 30.50 | 33.5 | 10.03 | 10.41 | 10.80 |
| 11.0 | 27.32 | 28.53 | 29.77 | 34.0 | 9.816 | 10.20 | 10.59 |
| 11.5 | 26.69 | 27.86 | 29.05 | 34.5 | 9.609 | 9.987 | 10.37 |

| | | | | | | | |
|------|-------|-------|-------|------|-------|-------|-------|
| 12.0 | 26.07 | 27.20 | 28.35 | 35.0 | 9.408 | 9.782 | 10.16 |
| 12.5 | 25.47 | 26.56 | 27.67 | 35.5 | 9.211 | 9.581 | 9.957 |
| 13.0 | 24.89 | 25.94 | 27.01 | 36.0 | 9.019 | 9.385 | 9.758 |
| 13.5 | 24.32 | 25.33 | 26.37 | 36.5 | 8.831 | 9.194 | 9.563 |
| 14.0 | 23.76 | 24.74 | 25.74 | 37.0 | 8.648 | 9.007 | 9.372 |
| 14.5 | 23.22 | 24.17 | 25.13 | 37.5 | 8.469 | 8.824 | 9.185 |
| 15.0 | 22.69 | 23.61 | 24.54 | 38.0 | 8.294 | 8.645 | 9.003 |
| 15.5 | 22.18 | 23.06 | 23.96 | 38.5 | 8.123 | 8.471 | 8.825 |
| 16.0 | 21.68 | 22.53 | 23.40 | 39.0 | 7.957 | 8.300 | 8.651 |
| 16.5 | 21.19 | 22.02 | 22.85 | 39.5 | 7.794 | 8.134 | 8.481 |
| 17.0 | 20.72 | 21.51 | 22.32 | 40.0 | 7.635 | 7.971 | 8.315 |
| 17.5 | 20.26 | 21.02 | 21.80 | 40.5 | 7.479 | 7.812 | 8.152 |
| 18.0 | 19.80 | 20.55 | 21.30 | 41.0 | 7.328 | 7.657 | 7.993 |
| 18.5 | 19.36 | 20.08 | 20.80 | 41.5 | 7.179 | 7.505 | 7.838 |
| 19.0 | 18.94 | 19.63 | 20.33 | 42.0 | 7.034 | 7.356 | 7.686 |
| 19.5 | 18.52 | 19.19 | 19.86 | 42.5 | 6.893 | 7.211 | 7.537 |
| 20.0 | 18.11 | 18.75 | 19.40 | 43.0 | 6.755 | 7.069 | 7.391 |
| 20.5 | 17.71 | 18.33 | 18.96 | 43.5 | 6.619 | 6.930 | 7.249 |
| 21.0 | 17.33 | 17.93 | 18.53 | 44.0 | 6.487 | 6.795 | 7.110 |
| 21.5 | 16.95 | 17.53 | 18.11 | 44.5 | 6.358 | 6.662 | 6.974 |
| 22.0 | 16.58 | 17.14 | 17.70 | 45.0 | 6.232 | 6.532 | 6.841 |
| 22.5 | 16.22 | 16.76 | 17.30 | 45.5 | 6.108 | 6.405 | 6.711 |
| 23.0 | 15.87 | 16.39 | 16.91 | 46.0 | 5.988 | 6.282 | 6.584 |
| 23.5 | 15.53 | 16.03 | 16.53 | 46.5 | 5.870 | 6.160 | 6.459 |
| 24.0 | 15.19 | 15.68 | 16.16 | 47.0 | 5.755 | 6.042 | 6.337 |
| 24.5 | 14.87 | 15.33 | 15.80 | 47.5 | 5.642 | 5.926 | 6.218 |
| 25.0 | 14.55 | 15.00 | 15.45 | 48.0 | 5.532 | 5.812 | 6.101 |
| 25.5 | 14.23 | 14.67 | 15.12 | 48.5 | 5.424 | 5.701 | 5.987 |
| 26.0 | 13.91 | 14.36 | 14.80 | 49.0 | 5.319 | 5.593 | 5.875 |
| 26.5 | 13.61 | 14.05 | 14.49 | 49.5 | 5.216 | 5.486 | 5.766 |
| 27.0 | 13.31 | 13.74 | 14.18 | 50.0 | 5.115 | 5.382 | 5.659 |
| 27.5 | 13.02 | 13.45 | 13.88 | 50.5 | 5.016 | 5.280 | 5.553 |
| 28.0 | 12.73 | 13.16 | 13.59 | 51.0 | 4.919 | 5.180 | 5.450 |
| 28.5 | 12.45 | 12.88 | 13.31 | 51.5 | 4.825 | 5.083 | 5.350 |
| 29.0 | 12.18 | 12.60 | 13.03 | 52.0 | 4.732 | 4.987 | 5.251 |
| 29.5 | 11.92 | 12.34 | 12.76 | 52.5 | 4.642 | 4.894 | 5.155 |
| 30.0 | 11.66 | 12.08 | 12.49 | 53.0 | 4.553 | 4.802 | 5.060 |
| 30.5 | 11.41 | 11.82 | 12.23 | 53.5 | 4.467 | 4.713 | 4.968 |
| 31.0 | 11.17 | 11.57 | 11.98 | 54.0 | 4.382 | 4.625 | 4.877 |
| 31.5 | 10.93 | 11.33 | 11.73 | 54.5 | 4.300 | 4.540 | 4.789 |
| 55.0 | 4.219 | 4.457 | 4.703 | 78.0 | 1.857 | 1.993 | 2.138 |
| 55.5 | 4.139 | 4.374 | 4.618 | 78.5 | 1.826 | 1.961 | 2.103 |
| 56.0 | 4.061 | 4.293 | 4.534 | 79.0 | 1.796 | 1.929 | 2.070 |
| 56.5 | 3.985 | 4.214 | 4.452 | 79.5 | 1.766 | 1.898 | 2.037 |
| 57.0 | 3.911 | 4.137 | 4.373 | 80.0 | 1.737 | 1.867 | 2.005 |
| 57.5 | 3.839 | 4.062 | 4.295 | 80.5 | 1.709 | 1.837 | 1.973 |

| | | | | | | | |
|-------|--------|--------|-------|-------|--------|--------|--------|
| 58.0 | 3.767 | 3.988 | 4.218 | 81.0 | 1.681 | 1.808 | 1.942 |
| 58.5 | 3.698 | 3.916 | 4.143 | 81.5 | 1.653 | 1.779 | 1.912 |
| 59.0 | 3.630 | 3.845 | 4.070 | 82.0 | 1.626 | 1.750 | 1.882 |
| 59.5 | 3.563 | 3.776 | 3.998 | 82.5 | 1.600 | 1.722 | 1.852 |
| 60.0 | 3.498 | 3.708 | 3.927 | 83.0 | 1.574 | 1.695 | 1.824 |
| 60.5 | 3.434 | 3.642 | 3.859 | 83.5 | 1.548 | 1.668 | 1.795 |
| 61.0 | 3.371 | 3.577 | 3.791 | 84.0 | 1.524 | 1.642 | 1.767 |
| 61.5 | 3.310 | 3.513 | 3.725 | 84.5 | 1.499 | 1.616 | 1.740 |
| 62.0 | 3.250 | 3.450 | 3.660 | 85.0 | 1.475 | 1.590 | 1.713 |
| 62.5 | 3.191 | 3.389 | 3.596 | 85.5 | 1.451 | 1.565 | 1.687 |
| 63.0 | 3.134 | 3.329 | 3.534 | 86.0 | 1.428 | 1.541 | 1.661 |
| 63.5 | 3.077 | 3.271 | 3.473 | 86.5 | 1.406 | 1.517 | 1.636 |
| 64.0 | 3.022 | 3.213 | 3.413 | 87.0 | 1.383 | 1.493 | 1.611 |
| 64.5 | 2.968 | 3.157 | 3.354 | 87.5 | 1.361 | 1.470 | 1.586 |
| 65.0 | 2.915 | 3.102 | 3.297 | 88.0 | 1.340 | 1.447 | 1.562 |
| 65.5 | 2.863 | 3.048 | 3.241 | 88.5 | 1.319 | 1.425 | 1.538 |
| 66.0 | 2.813 | 2.995 | 3.185 | 89.0 | 1.298 | 1.403 | 1.515 |
| 66.5 | 2.763 | 2.943 | 3.131 | 89.5 | 1.278 | 1.381 | 1.492 |
| 67.0 | 2.714 | 2.892 | 3.078 | 90.0 | 1.258 | 1.360 | 1.470 |
| 67.5 | 2.666 | 2.842 | 3.026 | 90.5 | 1.238 | 1.340 | 1.448 |
| 68.0 | 2.620 | 2.793 | 2.975 | 91.0 | 1.219 | 1.319 | 1.426 |
| 68.5 | 2.574 | 2.745 | 2.925 | 91.5 | 1.200 | 1.299 | 1.405 |
| 69.0 | 2.529 | 2.698 | 2.876 | 92.0 | 1.181 | 1.279 | 1.384 |
| 69.5 | 2.485 | 2.652 | 2.828 | 92.5 | 1.163 | 1.260 | 1.364 |
| 70.0 | 2.442 | 2.607 | 2.781 | 93.0 | 1.145 | 1.241 | 1.343 |
| 70.5 | 2.399 | 2.563 | 2.734 | 93.5 | 1.128 | 1.222 | 1.324 |
| 71.0 | 2.358 | 2.519 | 2.689 | 94.0 | 1.110 | 1.204 | 1.304 |
| 71.5 | 2.317 | 2.477 | 2.645 | 94.5 | 1.093 | 1.186 | 1.285 |
| 72.0 | 2.278 | 2.435 | 2.601 | 95.0 | 1.077 | 1.168 | 1.266 |
| 72.5 | 2.239 | 2.394 | 2.558 | 95.5 | 1.060 | 1.151 | 1.248 |
| 73.0 | 2.200 | 2.354 | 2.516 | 96.0 | 1.044 | 1.134 | 1.229 |
| 73.5 | 2.163 | 2.315 | 2.475 | 96.5 | 1.028 | 1.117 | 1.212 |
| 74.0 | 2.126 | 2.276 | 2.435 | 97.0 | 1.013 | 1.100 | 1.194 |
| 74.5 | 2.090 | 2.238 | 2.395 | 97.5 | 0.9976 | 1.084 | 1.177 |
| 75.0 | 2.055 | 2.201 | 2.356 | 98.0 | 0.9826 | 1.068 | 1.160 |
| 75.5 | 2.020 | 2.165 | 2.318 | 98.5 | 0.9679 | 1.052 | 1.143 |
| 76.0 | 1.986 | 2.129 | 2.280 | 99.0 | 0.9535 | 1.037 | 1.127 |
| 76.5 | 1.953 | 2.094 | 2.244 | 99.5 | 0.9392 | 1.022 | 1.110 |
| 77.0 | 1.920 | 2.060 | 2.208 | 100.0 | 0.9252 | 1.007 | 1.095 |
| 77.5 | 1.888 | 2.026 | 2.172 | 100.5 | 0.9115 | 0.9922 | 1.079 |
| 101.0 | 0.8981 | 0.9778 | 1.064 | 103.5 | 0.8339 | 0.9093 | 0.9906 |
| 101.5 | 0.8848 | 0.9636 | 1.049 | 104.0 | 0.8218 | 0.8963 | 0.9767 |
| 102.0 | 0.8717 | 0.9497 | 1.034 | 104.5 | 0.8098 | 0.8835 | 0.9631 |
| 102.5 | 0.8589 | 0.9360 | 1.019 | 105.0 | 0.7981 | 0.8710 | 0.9497 |
| 103.0 | 0.8463 | 0.9225 | 1.005 | | | | |

3.Exhaust temperature sensor 6.339K3954

| R25=50KΩ±1% | | | | | | | |
|------------------|-----------|--------|-----------|--------|-----------|--------|-----------|
| B25/50=3950K ±1% | | | | | | | |
| T [°C] | Rmin [KΩ] | T [°C] | Rmin [KΩ] | T [°C] | Rmin [KΩ] | T [°C] | Rmin [KΩ] |
| -20 | 449.9 | 464.7 | 479.9 | 20 | 61.68 | 62.44 | 63.20 |
| -19 | 425.7 | 439.5 | 453.6 | 21 | 59.00 | 59.70 | 60.40 |
| -18 | 402.9 | 415.7 | 428.8 | 22 | 56.44 | 57.09 | 57.74 |
| -17 | 381.5 | 393.4 | 405.6 | 23 | 54.02 | 54.61 | 55.20 |
| -16 | 361.3 | 372.3 | 383.6 | 24 | 51.70 | 52.25 | 52.80 |
| -15 | 342.2 | 352.5 | 363.0 | 25 | 49.50 | 50.00 | 50.50 |
| -14 | 324.3 | 333.9 | 343.7 | 26 | 47.37 | 47.87 | 48.37 |
| -13 | 307.5 | 316.4 | 325.5 | 27 | 45.34 | 45.84 | 46.34 |
| -12 | 291.5 | 299.8 | 308.3 | 28 | 43.41 | 43.91 | 44.41 |
| -11 | 276.6 | 284.3 | 292.2 | 29 | 41.59 | 42.08 | 42.57 |
| -10 | 262.4 | 269.6 | 276.9 | 30 | 39.84 | 40.33 | 40.82 |
| -9 | 249.0 | 255.7 | 262.5 | 31 | 38.18 | 38.66 | 39.15 |
| -8 | 236.5 | 242.7 | 249.0 | 32 | 36.59 | 37.07 | 37.55 |
| -7 | 224.5 | 230.3 | 236.2 | 33 | 35.07 | 35.55 | 36.03 |
| -6 | 213.3 | 218.7 | 224.2 | 34 | 33.64 | 34.11 | 34.58 |
| -5 | 202.7 | 207.7 | 212.8 | 35 | 32.27 | 32.73 | 33.20 |
| -4 | 192.7 | 197.3 | 202.0 | 36 | 30.95 | 31.41 | 31.87 |
| -3 | 183.2 | 187.5 | 191.9 | 37 | 29.70 | 30.15 | 30.61 |
| -2 | 174.3 | 178.3 | 182.4 | 38 | 28.50 | 28.95 | 29.40 |
| -1 | 165.8 | 169.5 | 173.3 | 39 | 27.37 | 27.81 | 28.25 |
| 0 | 157.7 | 161.2 | 164.7 | 40 | 26.29 | 26.72 | 27.16 |
| 1 | 150.2 | 153.4 | 156.7 | 41 | 25.24 | 25.67 | 26.10 |
| 2 | 142.9 | 145.9 | 148.9 | 42 | 24.25 | 24.67 | 25.09 |
| 3 | 136.1 | 138.9 | 141.7 | 43 | 23.31 | 23.72 | 24.14 |
| 4 | 129.7 | 132.3 | 134.9 | 44 | 22.41 | 22.81 | 23.22 |
| 5 | 123.6 | 126.0 | 128.4 | 45 | 21.53 | 21.93 | 22.33 |
| 6 | 117.8 | 120.0 | 122.3 | 46 | 20.71 | 21.10 | 21.50 |
| 7 | 112.2 | 114.3 | 116.4 | 47 | 19.92 | 20.30 | 20.69 |
| 8 | 107.1 | 109.0 | 111.0 | 48 | 19.16 | 19.54 | 19.92 |
| 9 | 102.1 | 103.9 | 105.7 | 49 | 18.44 | 18.81 | 19.18 |
| 10 | 97.42 | 99.08 | 100.8 | 50 | 17.75 | 18.11 | 18.48 |
| 11 | 92.97 | 94.51 | 96.06 | 51 | 17.08 | 17.44 | 17.80 |
| 12 | 88.74 | 90.17 | 91.61 | 52 | 16.44 | 16.79 | 17.14 |
| 13 | 84.73 | 86.05 | 87.38 | 53 | 15.84 | 16.18 | 16.53 |
| 14 | 80.92 | 82.14 | 83.37 | 54 | 15.26 | 15.59 | 15.93 |
| 15 | 77.29 | 78.42 | 79.56 | 55 | 14.69 | 15.02 | 15.35 |
| 16 | 73.84 | 74.89 | 75.95 | 56 | 14.16 | 14.48 | 14.81 |
| 17 | 70.57 | 71.54 | 72.51 | 57 | 13.65 | 13.96 | 14.28 |
| 18 | 67.46 | 68.35 | 69.25 | 58 | 13.15 | 13.46 | 13.77 |
| 19 | 64.49 | 65.32 | 66.15 | 59 | 12.69 | 12.99 | 13.30 |

| | | | | | | | |
|----|-------|-------|-------|----|-------|-------|-------|
| 60 | 12.23 | 12.53 | 12.83 | 90 | 4.474 | 4.628 | 4.787 |
| 61 | 11.80 | 12.09 | 12.39 | 91 | 4.338 | 4.489 | 4.645 |
| 62 | 11.39 | 11.67 | 11.96 | 92 | 4.207 | 4.354 | 4.506 |
| 63 | 10.98 | 11.26 | 11.54 | 93 | 4.081 | 4.225 | 4.374 |
| 64 | 10.60 | 10.87 | 11.15 | 94 | 3.958 | 4.099 | 4.245 |
| 65 | 10.23 | 10.50 | 10.77 | 95 | 3.840 | 3.978 | 4.121 |
| 66 | 9.880 | 10.14 | 10.41 | 96 | 3.726 | 3.861 | 4.001 |
| 67 | 9.537 | 9.792 | 10.05 | 97 | 3.616 | 3.748 | 3.885 |
| 68 | 9.211 | 9.460 | 9.715 | 98 | 3.509 | 3.639 | 3.773 |
| 69 | 8.897 | 9.141 | 9.391 | 99 | 3.407 | 3.534 | 3.665 |

AUX DC Inverter 1 Drive1 50HZ R410A

Sensorresistance table

| | | | | | | | |
|----|-------|-------|-------|-----|-------|-------|-------|
| 70 | 8.595 | 8.834 | 9.078 | 100 | 3.308 | 3.432 | 3.560 |
| 71 | 8.306 | 8.539 | 8.778 | 101 | 3.212 | 3.333 | 3.459 |
| 72 | 8.028 | 8.256 | 8.490 | 102 | 3.119 | 3.238 | 3.361 |
| 73 | 7.759 | 7.983 | 8.212 | 103 | 3.030 | 3.146 | 3.267 |
| 74 | 7.501 | 7.720 | 7.944 | 104 | 2.942 | 3.056 | 3.174 |
| 75 | 7.254 | 7.468 | 7.687 | 105 | 2.858 | 2.970 | 3.086 |
| 76 | 7.016 | 7.225 | 7.440 | 106 | 2.778 | 2.887 | 3.000 |
| 77 | 6.786 | 6.991 | 7.201 | 107 | 2.699 | 2.806 | 2.917 |
| 78 | 6.565 | 6.765 | 6.971 | 108 | 2.623 | 2.728 | 2.837 |
| 79 | 6.352 | 6.548 | 6.749 | 109 | 2.549 | 2.652 | 2.758 |
| 80 | 6.147 | 6.339 | 6.536 | 110 | 2.479 | 2.579 | 2.683 |
| 81 | 5.950 | 6.138 | 6.331 | 111 | 2.410 | 2.508 | 2.610 |
| 82 | 5.761 | 5.944 | 6.133 | 112 | 2.343 | 2.439 | 2.539 |
| 83 | 5.578 | 5.757 | 5.942 | 113 | 2.279 | 2.373 | 2.471 |
| 84 | 5.401 | 5.577 | 5.758 | 114 | 2.216 | 2.308 | 2.404 |
| 85 | 5.231 | 5.403 | 5.580 | 115 | 2.156 | 2.246 | 2.340 |
| 86 | 5.069 | 5.237 | 5.410 | 116 | 2.097 | 2.186 | 2.278 |
| 87 | 4.912 | 5.076 | 5.245 | 117 | 2.040 | 2.127 | 2.217 |
| 88 | 4.760 | 4.921 | 5.087 | 118 | 1.985 | 2.070 | 2.158 |
| 89 | 4.615 | 4.772 | 4.934 | 119 | 1.932 | 2.015 | 2.102 |
| | | | | 120 | 1.880 | 1.962 | 2.047 |

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