MUNDOCLIMA®

AIR CONDITIONER WITHOUT OUTDOOR UNIT

Service manual

MU-WZ Series

www.mundoclima.com

CL19782
English

Index

1.Main features

Double ducted machine is different with the normal split type air conditioner, and there is no outdoor unit. It is a special solution for commercial and residential buildings.

The twin-duct system eliminates security breaches and offers a great look to the building, as only 2x162mm holes are required.

The benefits of no outdoor unit are: no sleeve, no louvers and no rust, ensuring low cost installation and maintenance. The heat pump provides low operating costs when in heating mode.

Also, double ducted machine could be installed on glass with special precautions for the glass stcucture.

• R410a gas, friendly refrigerant with high efficiency ozone.

• Auto water evaporation in cooling and heating mode

• Intelligent control technology.

• High-efficiency cooling and heating performance.

• Silent operation

• Full function LCD remote control

1.1 Packing method

1. Machine will sit on the basic paper stand and put the foams on both sides.

2. Two rubber grilles will be set in one side of the foam.

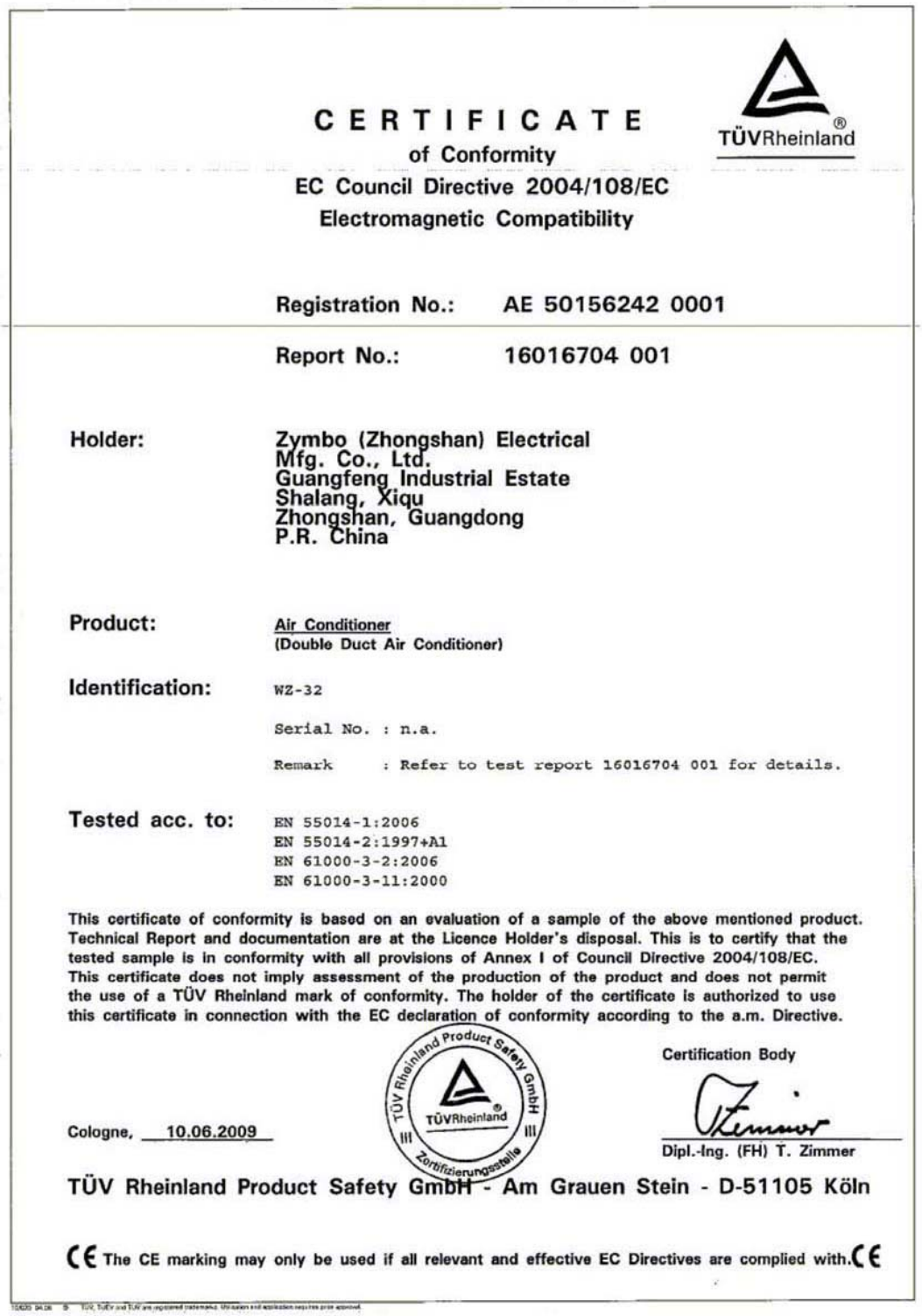
3. Two air pipes (inlet and outlet) will be set in another side of the foam.

4. Full set machine was packed into the carton box.

5. Close and wrap with tapes. Finished.

2. Certificatin

2.1 CE-EMC



CERTIFICATE

of Conformity

EC Council Directive 2004/108/EC

Electromagnetic Compatibility

TÜVRheinland®

Registration No.: AE 50156242 0001

Report No.: 16016704 001

Holder: Zymbo (Zhongshan) Electrical Mfg. Co., Ltd.
Guangfeng Industrial Estate
Shalang, Xiqu
Zhongshan, Guangdong
P.R. China

Product: Air Conditioner
(Double Duct Air Conditioner)

Identification: WZ-32

Serial No. : n.a.

Remark : Refer to test report 16016704 001 for details.

Tested acc. to: EN 55014-1:2006
EN 55014-2:1997+A1
EN 61000-3-2:2006
EN 61000-3-11:2000

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2004/108/EC. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.

TÜV Rheinland Product Safety GmbH TÜVRheinland Zertifizierungsstelle

Certification Body

Cologne, 10.06.2009

Dipl.-Ing. (FH) T. Zimmer

TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln

CE The CE marking may only be used if all relevant and effective EC Directives are complied with. CE

2.2 CE-LVD

CERTIFICATE

TÜVRheinland®

of Conformity
Low Voltage Directive 2006/95/EC

Registration No.: AN 50157477 0001

Report No.: 16010588 003

Holder: Zymbo (Zhongshan) Electrical
Mfg. Co., Ltd.
Guangfeng Industrial Estate
Shalang, Xiqu
Zhongshan, Guangdong
P.R. China

Product: Air Conditioner
(Double Duct Air Conditioner)

Identification: WZ-25 WZ-32

Serial No.: n.a.

Remark : Refer to test report 16010588 003 for details.

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal.This is to certify that the tested sample is in conformity with all revision of Annex I of Council Directive 2006/95/EC, in its latest amended version, referred to as the Low Voltage Directive. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Annex III of the Directive.

Certification Body

Cologne, 18.06.2009

TÜV Rheinland Product Safety GmbH Zertifizierungsstelle

Dipl.-Ing. (FH) T. Zimmer

TÜV Rheinland Product Safety GmbH - Am Grauen Stein - D-51105 Köln

CE The CE marking may be used if all relevant and effective EC Directives are complied with. CE

2.3 RoHS

DNV Business Assurance

VERIFICATION OF PRODUCT DECLARATIONS

RoHS Green Product

Certificate No. 2006-SZ-RoHS-0052

Application of the Council Directive 2011/65/EU on the restriction of the use of certain hazardous substances in the electrical and electronic equipment

This is to certify that the following products:

Heat Exchanger 热交换器

Vehicle Air Conditioner 车载空调器

Double Duct Type Air Conditioner 双管式空调器

Fan-coil 风机盘管

(As listed on Appendix of this certificate)

Manufactured by

ZYMBO (ZHONGSHAN) ELECTRICAL MFG. CO., LTD.

中山深宝电器制造有限公司

Guangfeng Industrial Estate, Shalang, Xiqu, Zhongshan City, Guangdong, P.R. China
中国广东省中山市西区沙朗广丰工业区
are found to be in compliance with the requirements of the directives.

Initial Certification date:
October 11th, 2006

Place and date:
Shanghai, November 11th, 2014

This Certificate is valid until:
December 5th, 2017

CE

for
DNV GL Business Assurance (China) Co., Ltd.

The audit has been performed under the supervision of
Xian Kao Wen
Lead Auditor

Chen Yi
Management Representative

Certificate No. 2006-SZ-RoHS-0052

1. This certificate is subject to that:
   - The products are manufactured in accordance with the procedures and processes as stipulated in the management system assessed by DNV during site audit.
   - Clients have provided accurate data and information in the assessed product declaration forms.
   - Clients shall inform DNV the changes in the management system and product declaration forms timely.

2. This certificate is based on initial audit and annual audit of the implementation of management system, the sampled product declaration forms and relevant records.

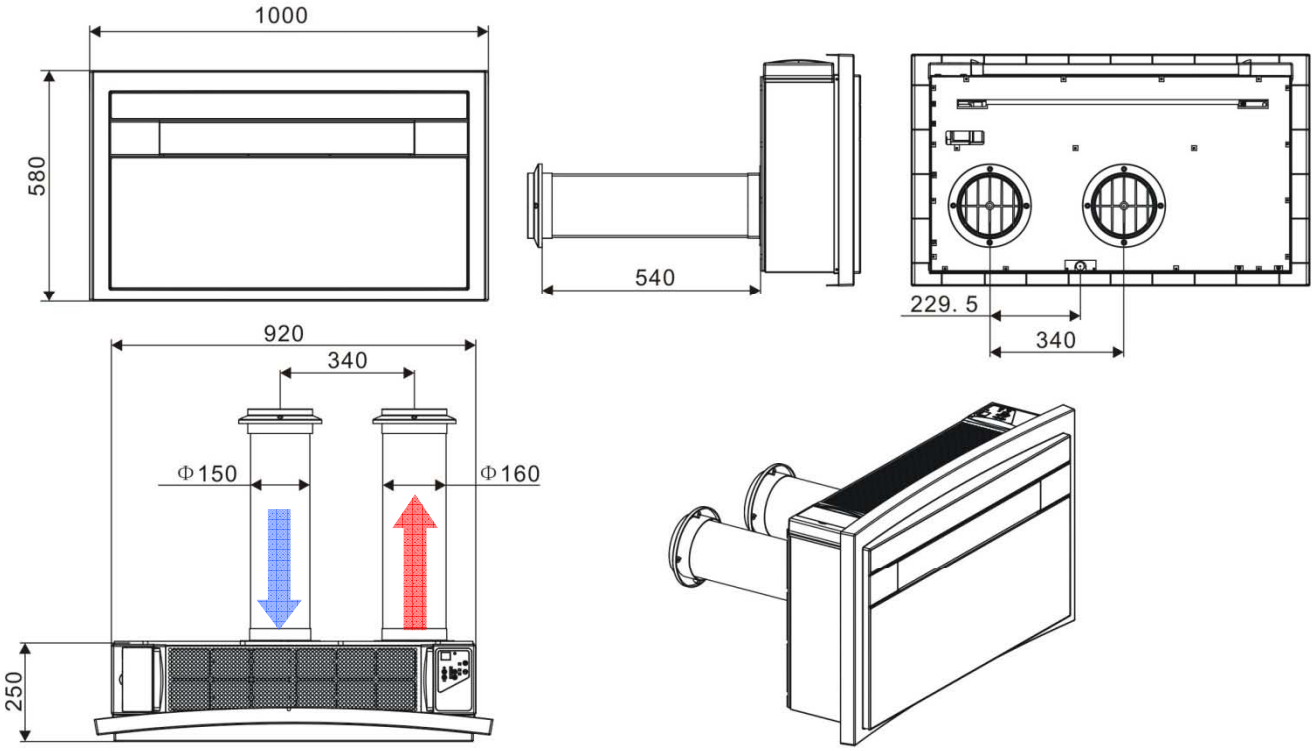
3. For products with declaration forms been verified by DNV, DNV' s RoHS certification marking can be affixed on the products. All the relevant Directives must be complied.

4. Applicable Product Series:

Product Name: **产品类别** **(中英文名称)**	**Model Name** **对应的产品型号**
Heat Exchanger 热交换器	Evaporator , Condenser
Vehicle Air Conditioner 车载空调器	HB2500, HB9000
Double Duct Type Air Conditioner 双管式空调器	WZ-20, WZ-21, WZ-25, WZ-28EC, WZ-28EC polar, WZ-32 polar WZ-X, WZ-XEC,WZ-XEC polar,WZ-X polar X:CoolingCapacity
	iCOOL, iWARM
Fan-coil 风机盘管	RX-200 RX-400

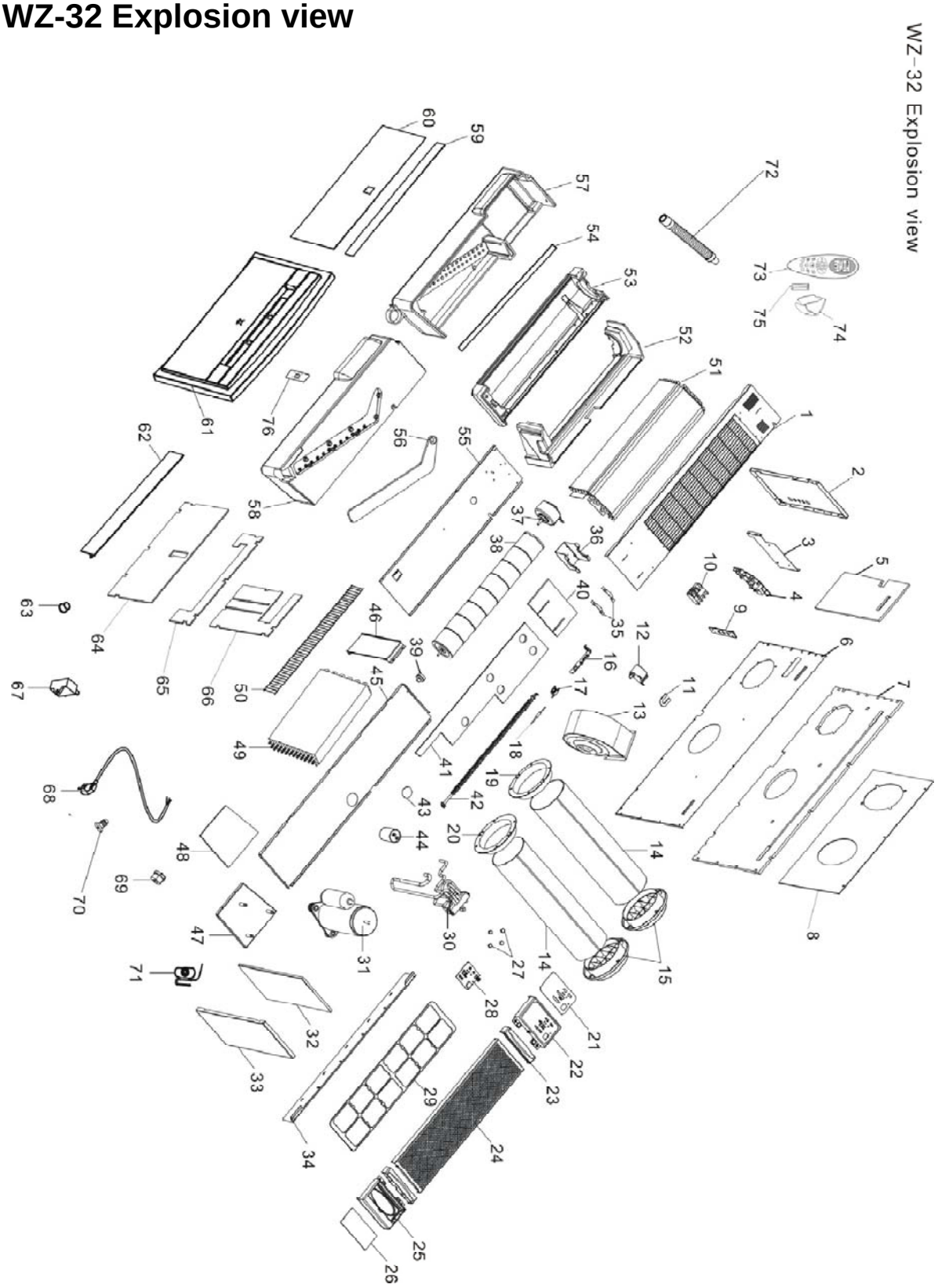
The above products are made from the components and material which are in compliance to RoHS Directives.

3. Overall Dimensions



4. Explosion view and parts list

WZ-32 Explosion view



WZ-32 Parts list

No. in Explosive View	ZYMBO code BOM	Chinese Name	English Name	Remarks
1	R122160384	顶钣金组件	Top cover assy.	
2	R127040627	左盖板	Left cover	
3	R127030204	PCB 固定板	Fixture for PCB	
4	R131010481	PCB 板	PCB	including R131190043/44/60
5	R138140570	后盖板海绵（压）	Back insulation material(comp side)	
6	R127020524	后盖板	Back cover	
7	R138140568	后盖板海绵（外）	Back insulation material(outside)	
8	R138140569	后盖板海绵（内）	Back insulation material(inside)	
9	R128060314	新风门调解窗口	Fresh air window	
10	R131030006	三位接线端子	Terminal	
11	R128040313	过线圈	Inside cable plastic ring	
12	R131060051	步进电机	Step motor	
13	R131050078	冷凝器电机	Condenser fan motor	
14	R128060524	气管塑料膜	Plastic sheet	
15	R128030437	格栅	Rub cup grill	
16	R127020528	电加热固定板	Electrical heater bracket	
17	R131080033	温控器	Thermostat	
18	R131190064	温控器连线	Fuse	
19	R128060394	出风管安装环A	O-ring for air inlet pipe	
20	R128060395	出风管安装环B	O-ring for air outlet pipe	
21	R128040312	线控器面膜	On board control box film	
22	R128040310	线控器盒	On board control box	
23	R128060387	提手	Handle	
24	R127040631	进风格栅	Air inlet grille	
25	R128040324	遥控器盒	Remote control box	
26	R128040326	遥控器盒盖	Remote control box cover	
27	R137010073	橡胶垫	Rubber support	
28	R131170147	线控器（带电加热）	On board control PCB	
29	R128020483	过滤网	Filter	
30	R122120269	四通阀组件	Reversing valve and tubes assy.	
31	R133140060	压缩机组件	Compressor assy.	
32	R138140571	右盖板海绵	Right cover insulation material	
33	R127040629	右盖板	Right cover	
34	R127080054	挂墙板	Mounting sheet	
35	R127020534	内电机固定条	Indoor motor cover	
36	R127020532	内电机架	Indoor motor bracket	
37	R131040165	内电机	Indoor motor	
38	R128050017	贯流风扇	tangential fan	
39	R139050004	轴承座	axletree seat	
40	R138140572	顶钣金海绵	Top cover insulation material	

41	R138140566	底板海绵	Basic pan insulation material	
42	R131190062	电加热组件	Electrical heater assy.	
43	R138140573	电容底海绵	Compressor capacitor insulation material	
44	R131150005	压缩机电容	Capacitor for compressor	
45	R140140068	底钣金	Basic pan	
46	R127020536	支撑板	Link plate	
47	R127020522	压缩机安装板	Compressor mounting sheet	
48	R138140567	压缩机底海绵	Compressor bottom insulation material	
49	R121050205	冷凝器组件	Condenser assy.	
50	R127020373	出风格栅	Air outlet grill	
51	R122010180	蒸发器组件	Evaporator assy	
52	R128060392	室内机上盖	Evaporator top epp	
53	R128060393	室内机下盖	Evaporator down epp	
54	R138140620	蒸发器密封海绵	Evaporator insulation material	
55	R127020530	中间钣金	Partition	
56	R128060391	蜗壳上盖 EPP	Condenser top epp closer	
57	R128060390	底座EPP	Condenser lower epp	
58	R128060389	蜗壳 EPP	Condenser top epp	
59	128030542	面板上镜	Upper PMMA	
60	R128030469	面板下镜	Lower PMMA	
61	R128030455	前面板	Front panel	
62	R128030456	导风板	flap panel	
63	R128030286	轴套	Axis sleeve	
64	R138140383	面板下海绵	Front panel bottom insulation material	
65	R138140382	面板上海绵	Front panel top insulation material	
66	R138140565	面板海绵3	Front panel insulation material 3	
67	R131140039	电机电容	Capacitor for motor	
68	R132040216	电源线	Power cable	
69	R139010035	过线圈	Cable plastic ring	
70	R139010076	水塞	Stopple	
71	R122060129	毛细管组件	Capillary assy.	
72	R128070006	排水管组件	Drain parts	
73	R131170148	遥控器	Remote control	
74	R128040261	遥控器座	Remote control seat	
75	R131100001	电池	Battery	
76	R131102097	灯板	LED display	

5.Rated technical data

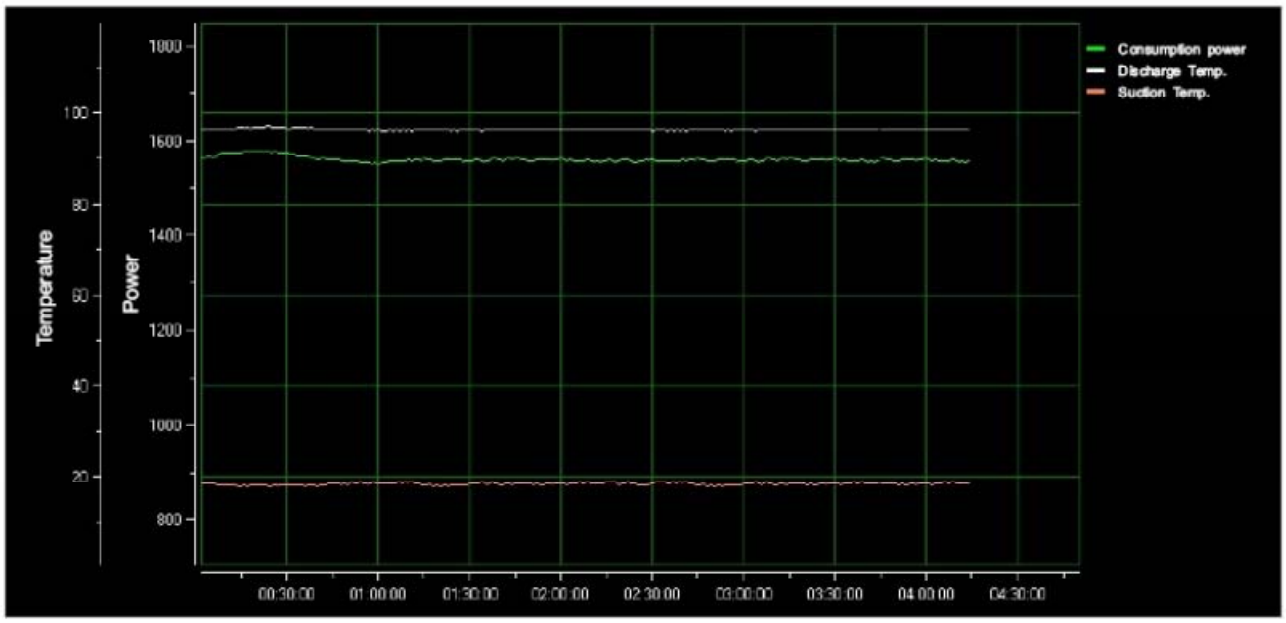
Descriptions	Unit	WZ-32
Cooling capacity	W (Btu/h)	3348(11400)
Heating capacity	W (Btu/h)	3762(12840)
Rated voltage	V	230
Frequency	Hz	50
Absorbed power in cooling	W	1287
Absorbed current in cooling	A	5.6
Absorbed power in heating	W	1214
Absorbed current in heating	A	5.3
EER label (Cooling Mode)	**A**BCDEFG	A
COP label (Heating Mode)	**A**BCDEFG	A
Indoor Air low	m^3/h	480
Outdoor Air low	m^3/h	690
Noise lever (SPL)	dB(A)	See table
Dehumidification capacity	L/24h	31.2
Optional temperature (remote control)	℃	18-30
Maximum external temperature ***	° C	+43
Minimum external temperature HP ****	° C	-5
Fuse (T3,15L)	V	250
Refrigerant / R410a	g	680
Dimension H/W/D	cm	53.7/94.8/26
Net Weight	Kg	45

**The above data could be changed in order to improve the performance.
*** The machine can work at T3 condition , with max out door temperature 52 ° C but the cooling performance will be reduced .
**** The machine can work at -15 ° C , but the Heating performance will be reduced .

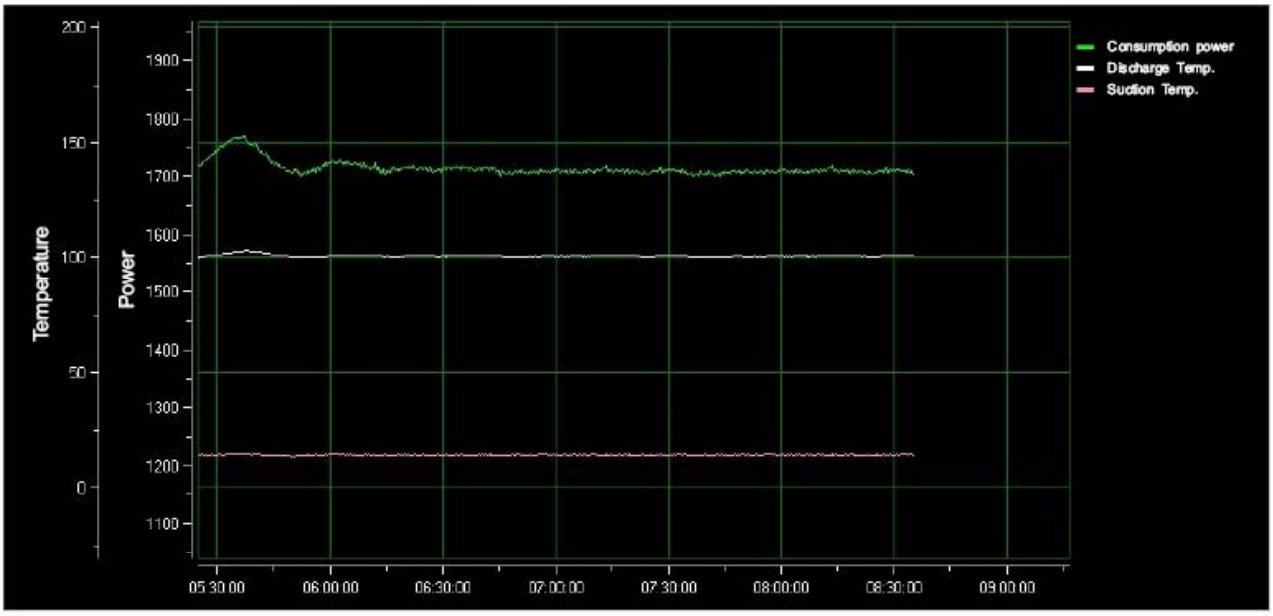
See in the next page the real performance data in Heating and Cooling mode

Cooling test

Test Condition:
Indoor(Dry bulb/Wet bulb):32℃/23 ℃
Outdoor (Dry bulb/Wet bulb) :43℃/26℃

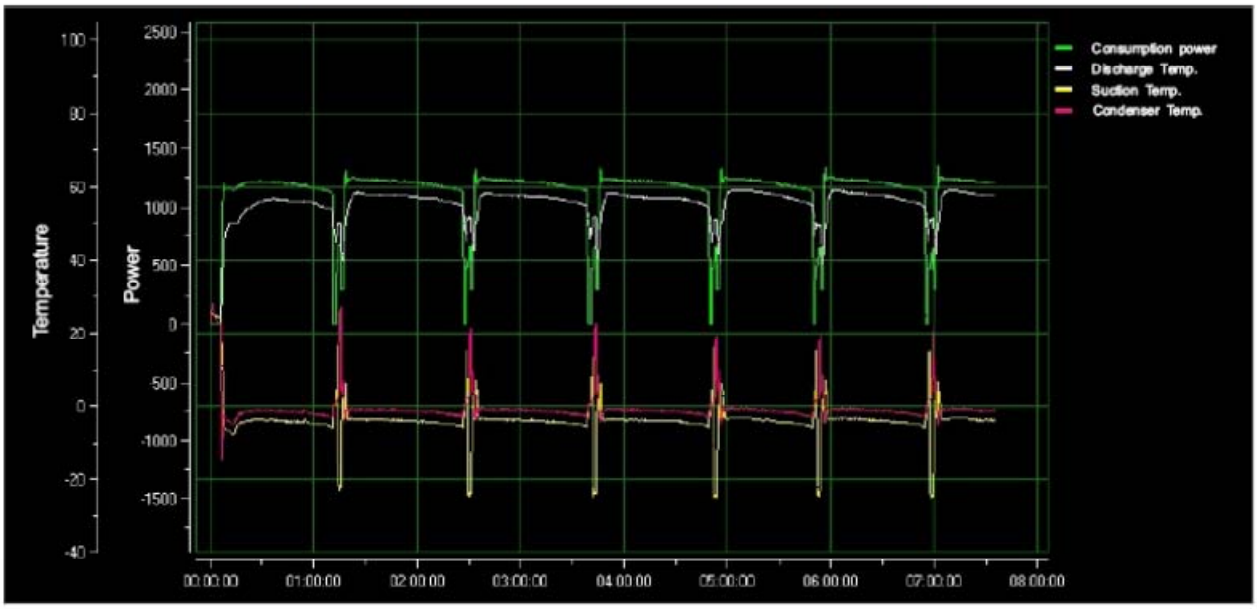


Test Condition:
Indoor(Dry bulb/Wet bulb):32℃/23℃
Outdoor(Dry bulb/Wet bulb):52℃/31℃

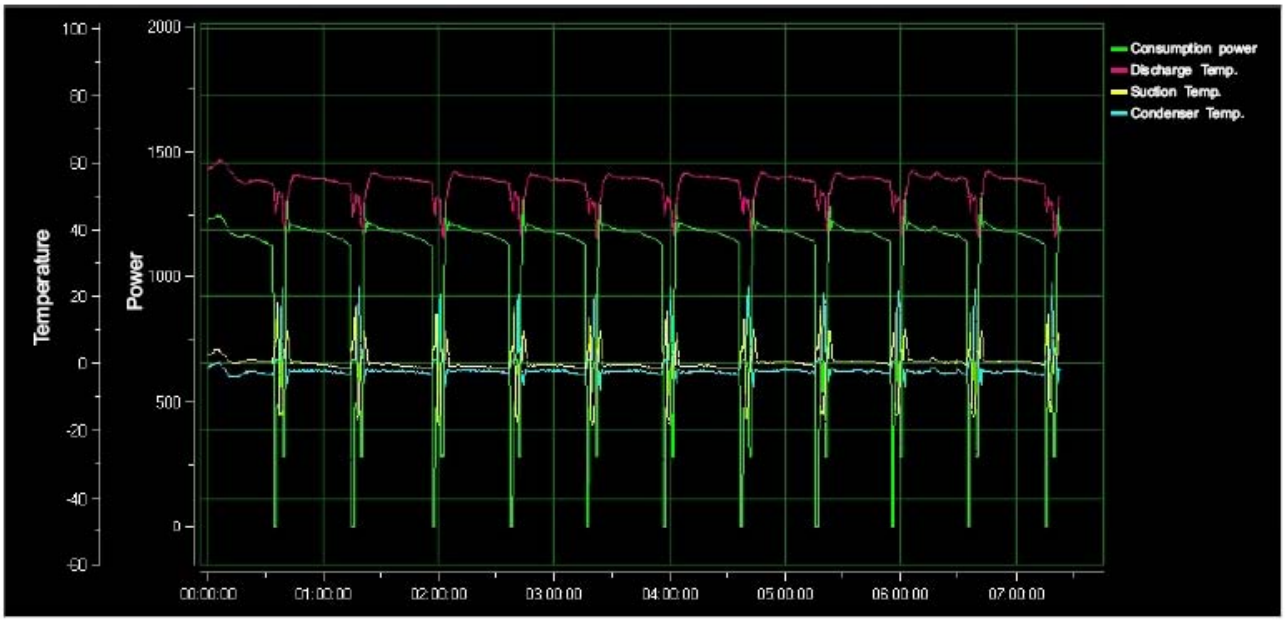


Heating pump test (no heater)

Test Condition:
Indoor(Dry bulb/Wet bulb):20℃/12℃
Outdoor(Dry bulb/Wet bulb):2℃/1℃

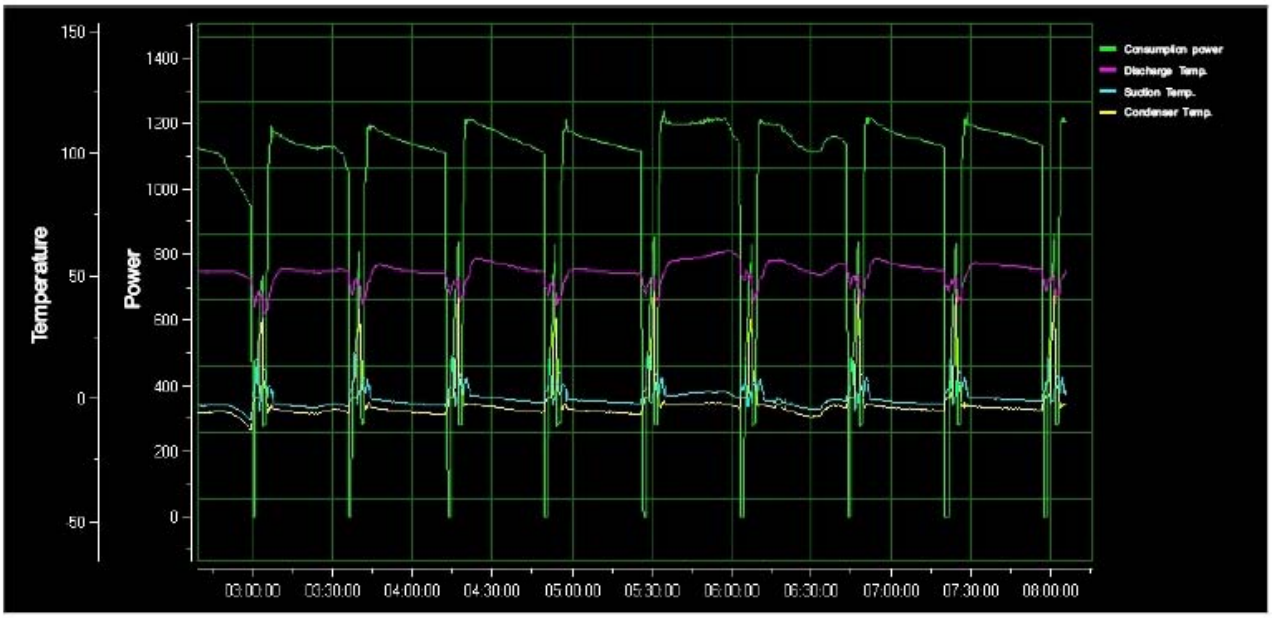


Test Condition:
Indoor(Dry bulb/Wet bulb):20℃/12℃
Outdoor(Dry bulb/Wet bulb):0℃/0℃

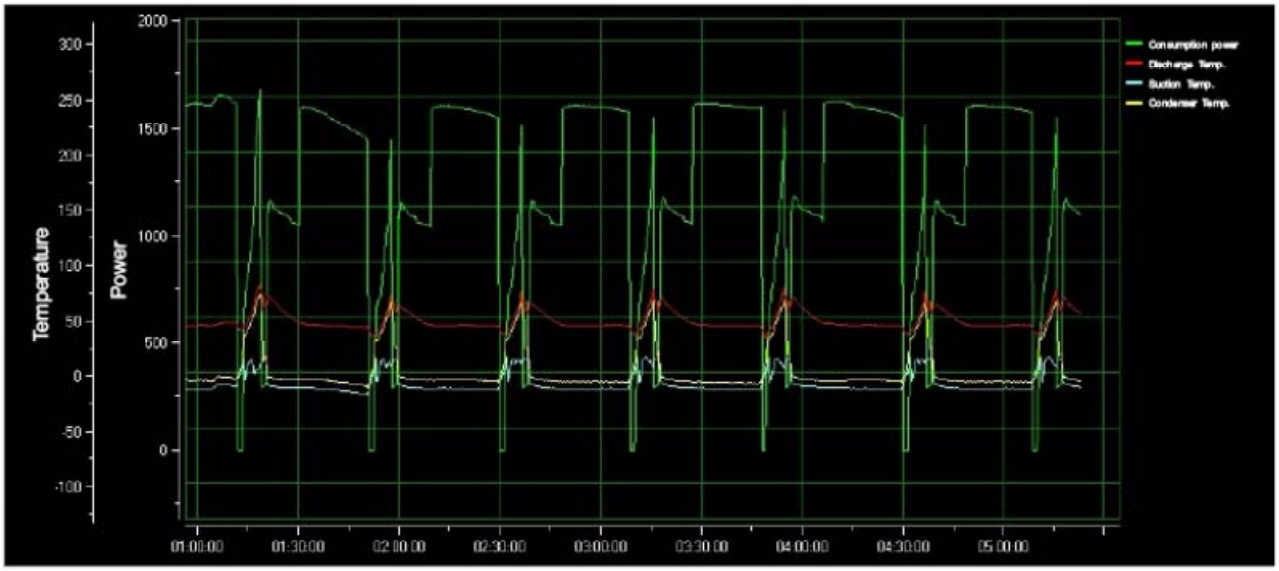


Heating pump test (no heater)

Test Condition:
Indoor(Dry bulb/Wet bulb):20℃/12℃
Outdoor(Dry bulb/Wet bulb):-5℃

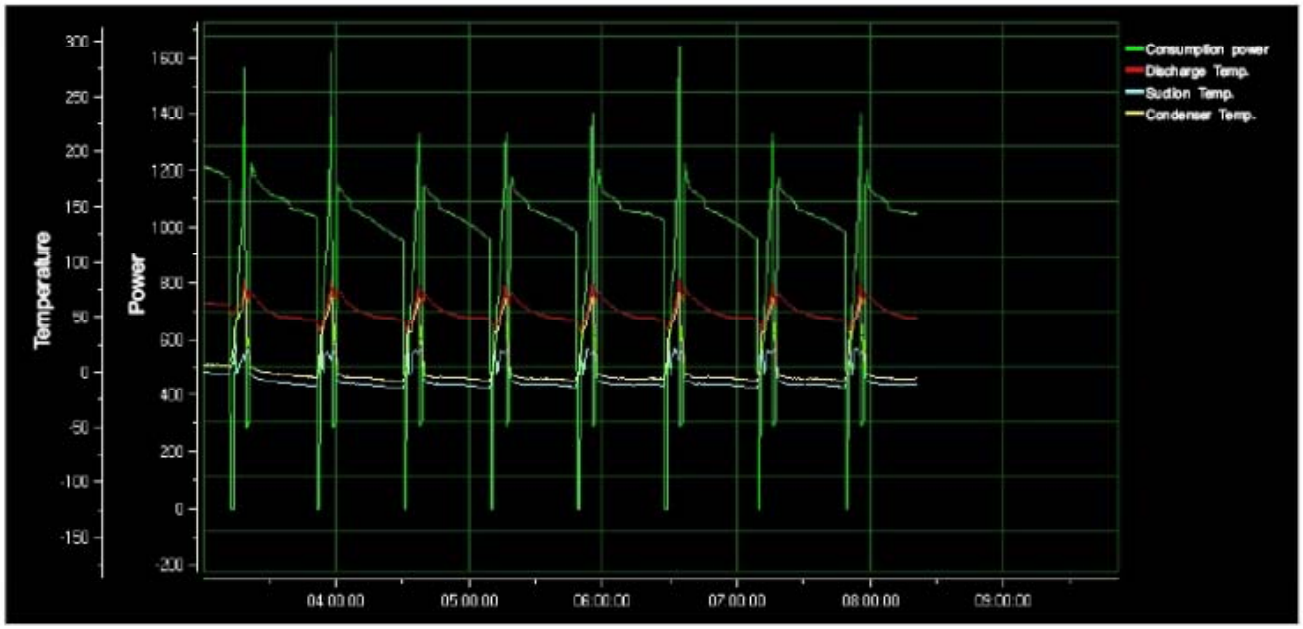


Test Condition:
Indoor(Dry bulb/Wet bulb):20℃/12℃
Outdoor(Dry bulb/Wet bulb):-10℃

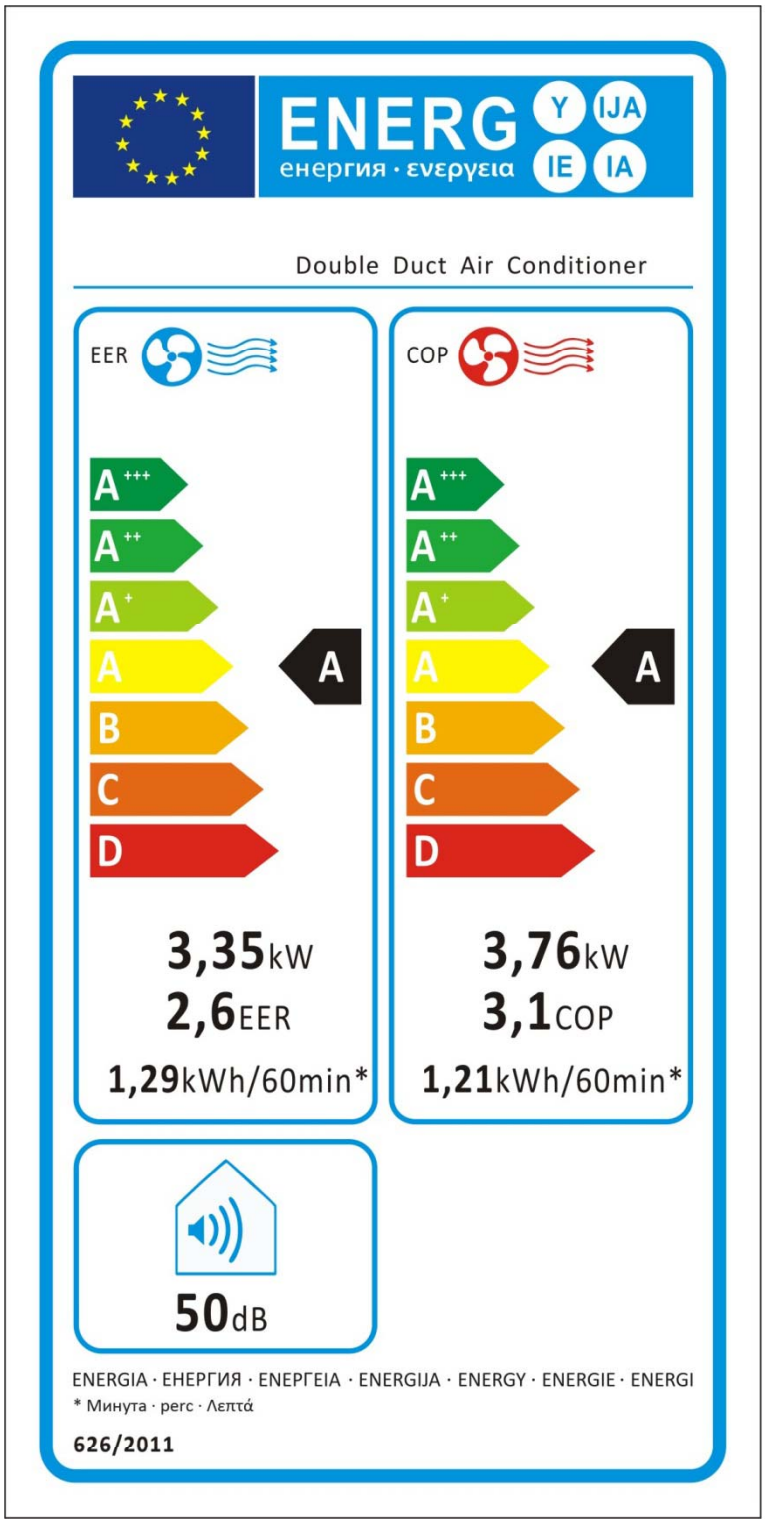


Heating pump test (no heater)

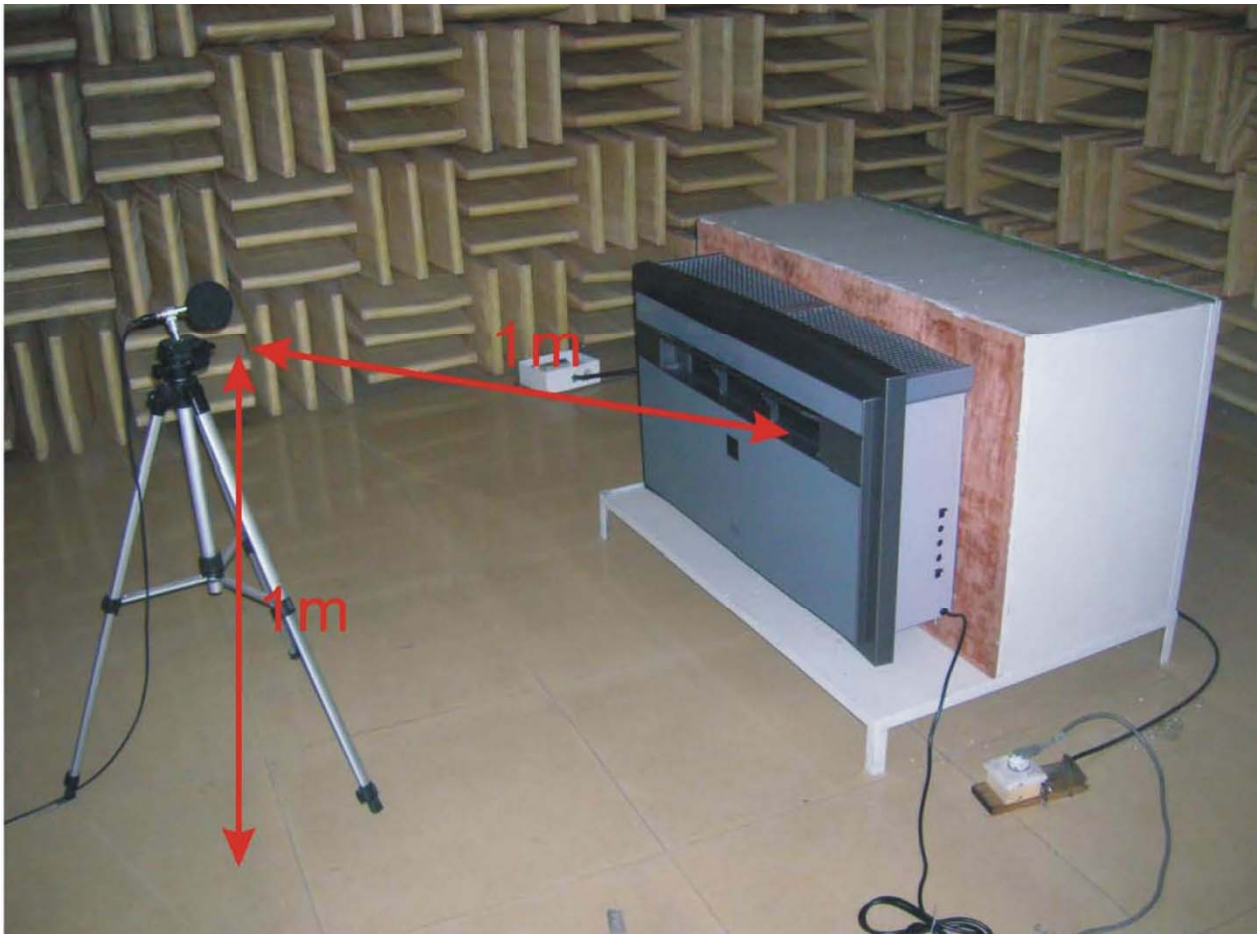
Test Condition:
Indoor(Dry bulb/Wet bulb):20℃/12℃
Outdoor(Dry bulb/Wet bulb):-15℃



6. Energy label



7. Noise level (Indoor – Outdoor)

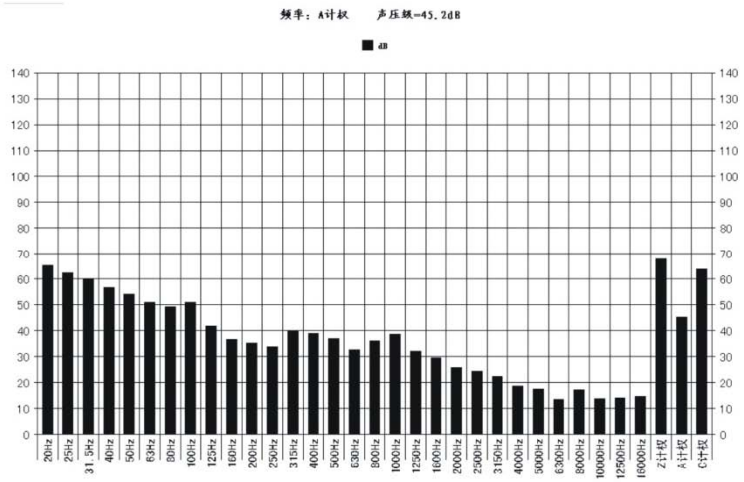


**The Noise test is done in semi reverberant room , with ambient noise level 23 dB(A) , the structure is not perfectly appropriate for the double ducted machine , for this reason the noise level is correct around - 3, 5 dB(A) calculated .

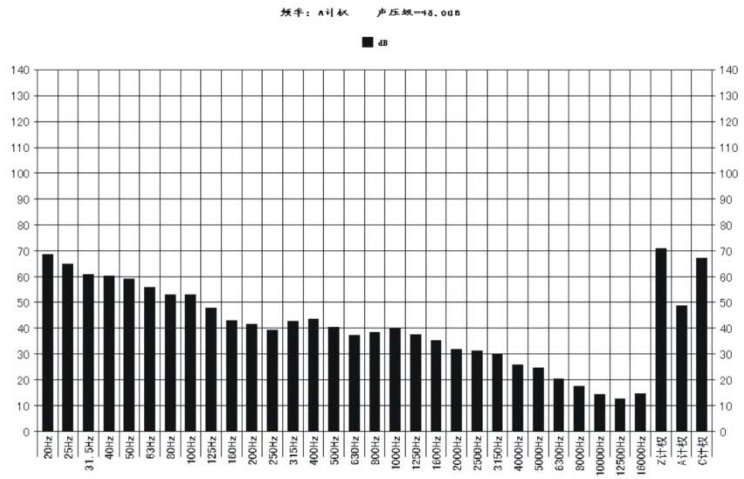
SPL (Sound Pressure Level) dB(A)	MIN Speed	MED Speed	MAX Speed
Indoor Fan Mode	41,7	45,1	48,3
Indoor Cooling / Heating Mode	43,8	46,5	49,0
Out Door Pipes	41,6	-	59,6

7.1. Noise level (Indoor Fan Mode)

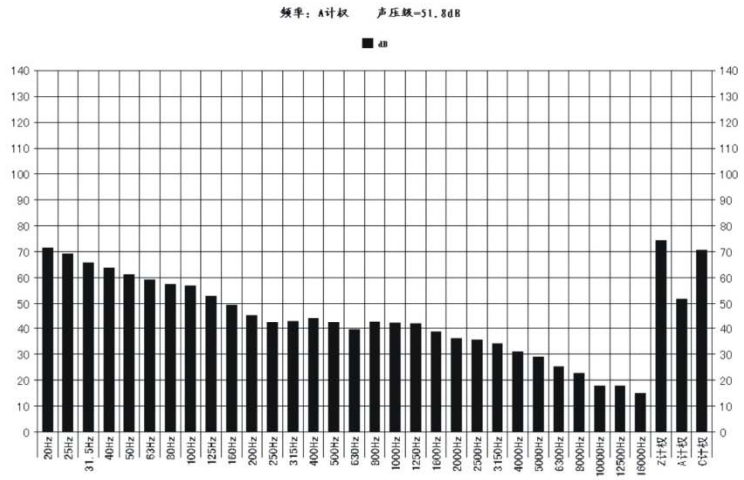
Indoor noise test with fan mode



Low fan speed



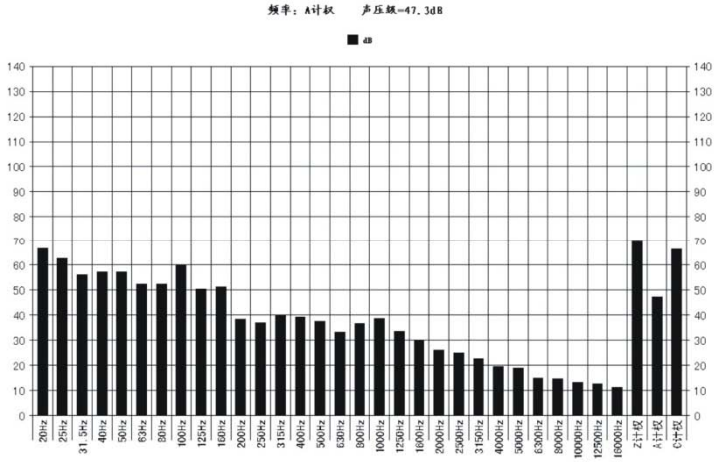
Middle fan speed



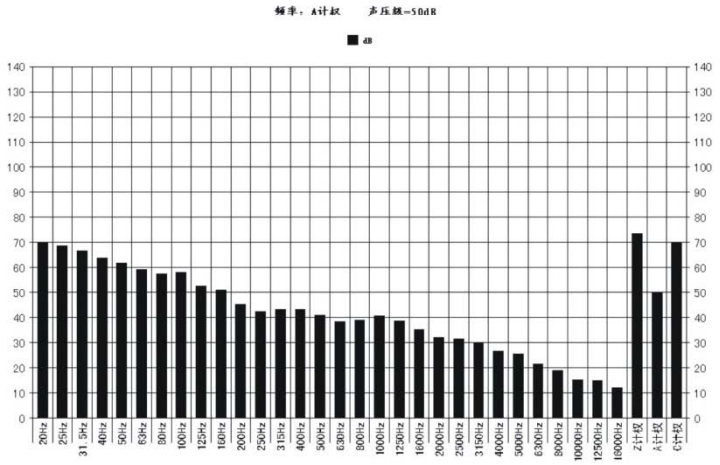
High fan speed

7.2. Noise level (Indoor Cooling- Heating Mode)

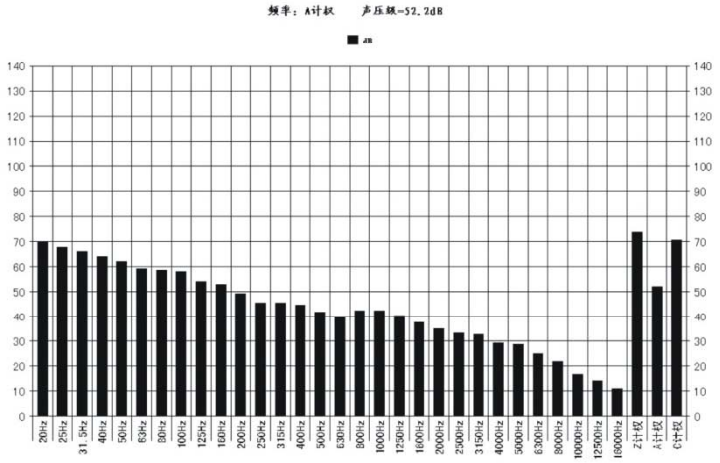
Indoor noise test with cooling mode



Low fan speed



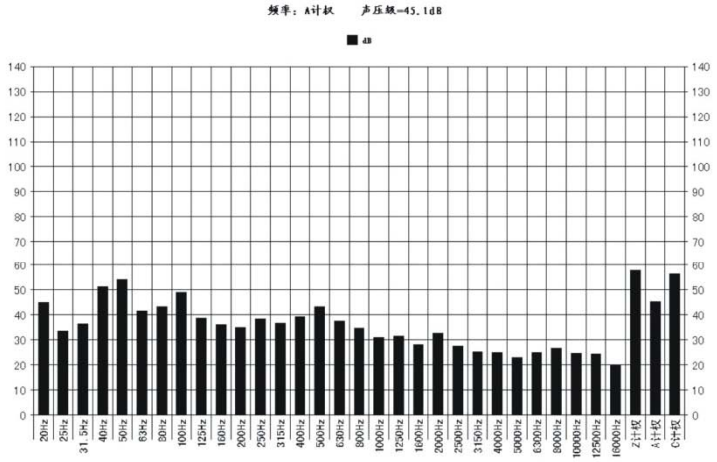
Middle fan speed



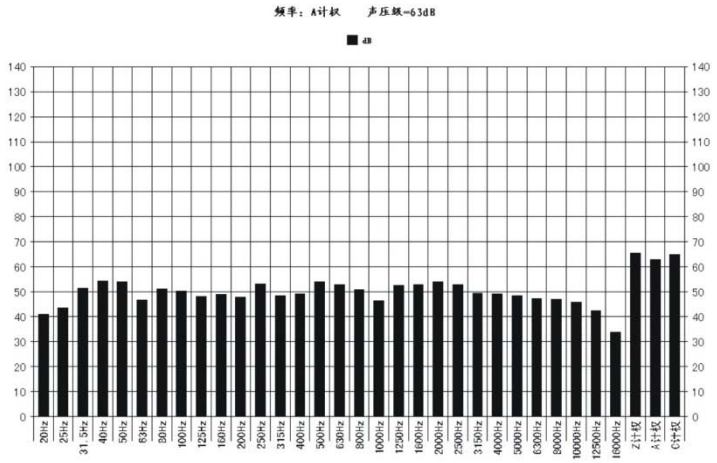
High fan speed

7.3. Noise level (Outdoor Cooling – Heating Mode)

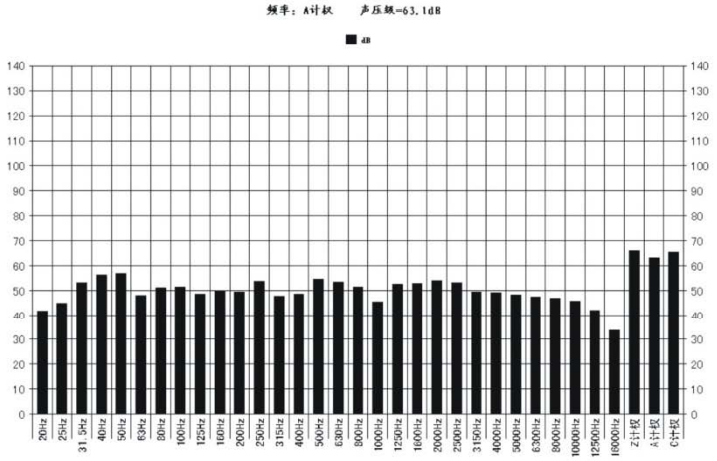
Outdoor noise test with cooling mode



Low fan speed

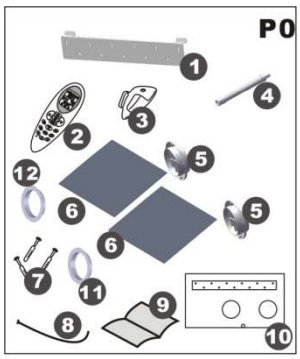


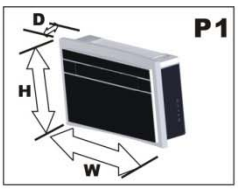
Middle fan speed

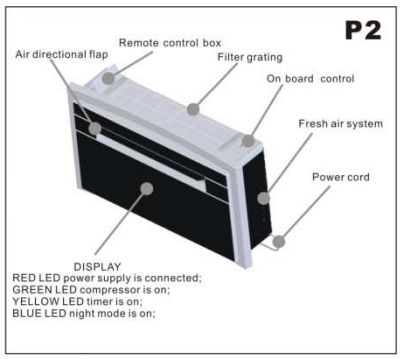


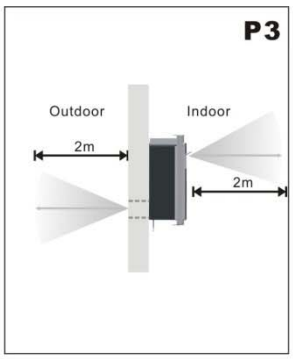
High fan speed

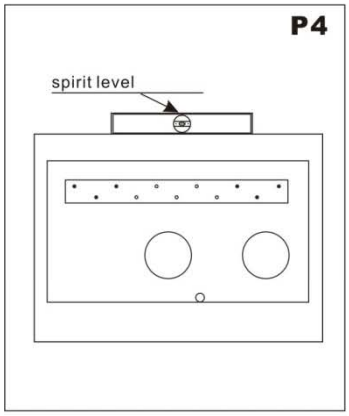
8. Installation

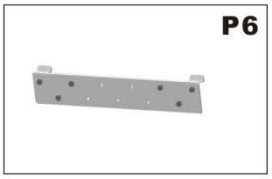


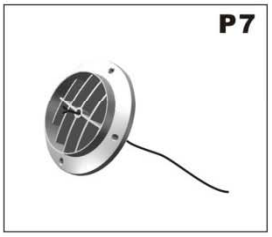


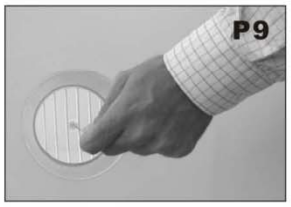


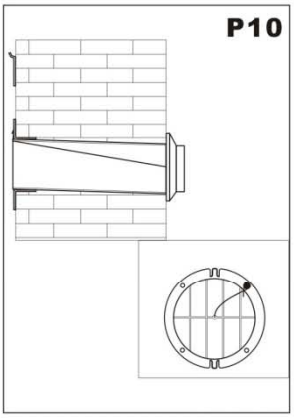


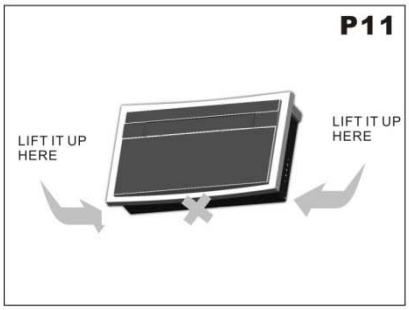


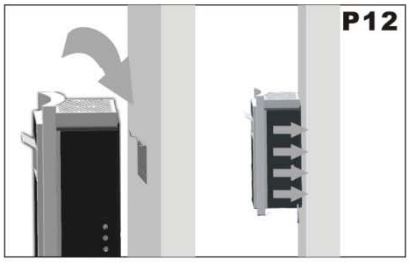


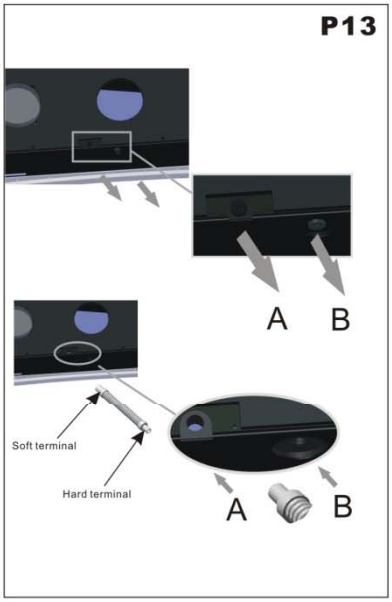


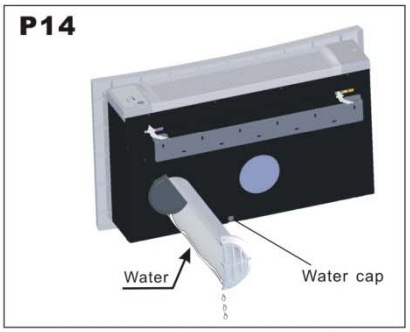


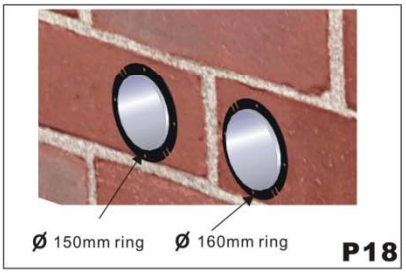


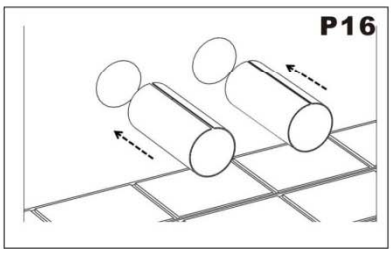


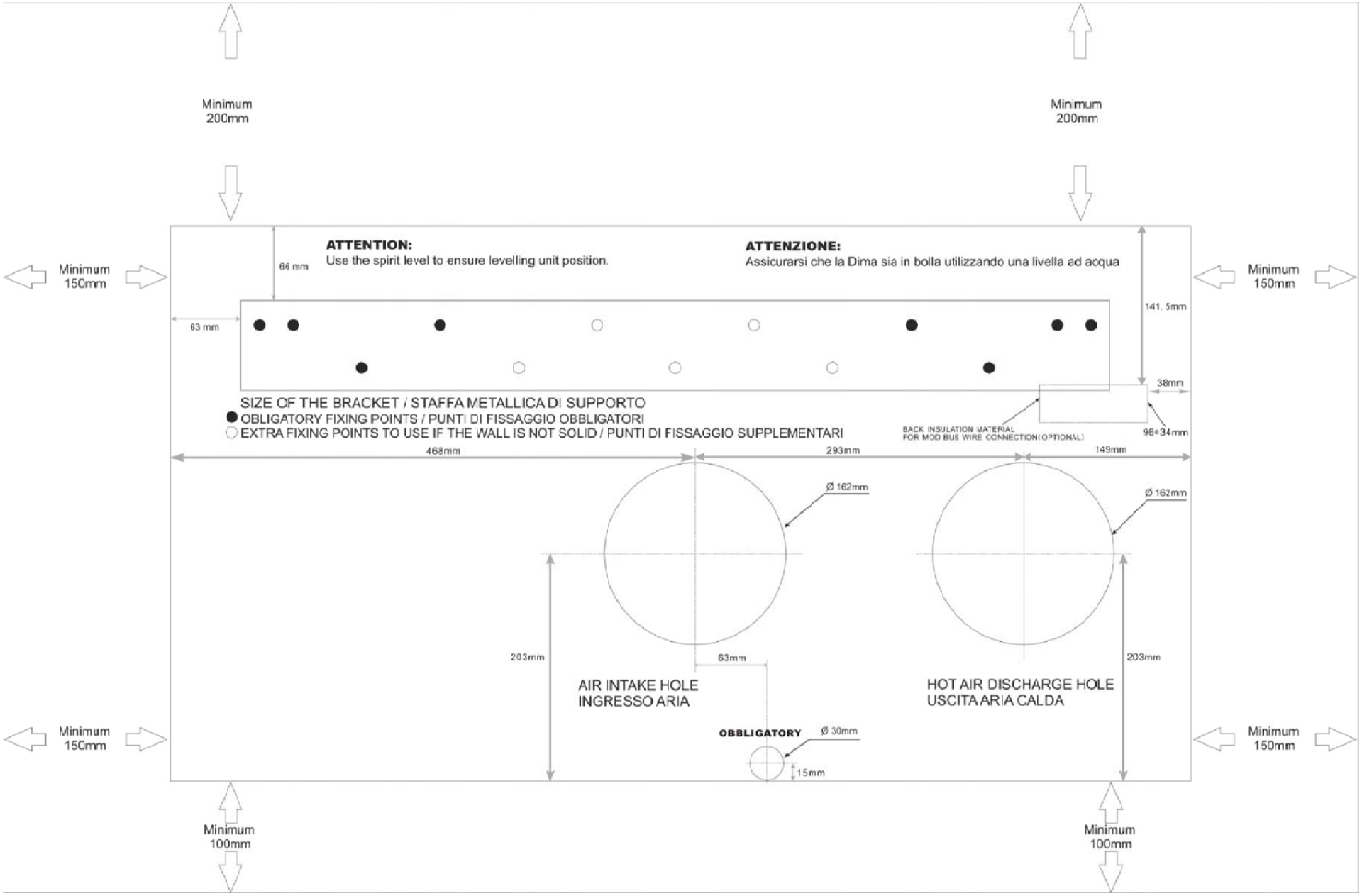











Minimum
200mm
Minimum
200mm
Minimum
150mm
Minimum
150mm
66 mm
63 mm
ATTENTION:
Use the spirit level to ensure levelling unit position.
ATTENZIONE:
Assicurarsi che la Dima sia in bolla utilizzando una livella ad acqua
141. 5mm
38mm
96+34mm
SIZE OF THE BRACKET / STAFFA METALLICA DI SUPPORTO
OBLIGATORY FIXING POINTS / PUNTI DI FISSAGGIO OBBLIGATORI
EXTRA FIXING POINTS TO USE IF THE WALL IS NOT SOLID / PUNTI DI FISSAGGIO SUPPLEMENTARI
BACK INSULATION MATERIAL
FOR MOD BUS WIRE CONNECTION(OPTIONAL)
468mm
293mm
149mm
Ø 162mm
Ø 162mm
203mm
63mm
203mm
AIR INTAKE HOLE
INGRESSO ARIA
HOT AIR DISCHARGE HOLE
USCITA ARIA CALDA
OBBLIGATORY
Ø 30mm
15mm
Minimum
150mm
Minimum
150mm
Minimum
100mm
Minimum
100mm

8.1 Positioning the air conditioner (P3)

To maintain the best performance from your air conditioner, prevent breakdowns or hazards, you must position it correctly. Please follow the guidelines and instruction below in full, as failure to do so could cause potential installation problems.

• The air conditioner must be installed on an exterior wall that has access to the outside with a minimum of 2 meters clearance to the outside.

• The air conditioner must be fitted leaving room all around as illustrated in the paper template.

• The wall on which the air conditioner is installed must be sturdy and able to withstand the weight of the air conditioner.

After determining the best place for installation as described above, please check to ensure that the wall can be drilled in the chosen area without interfering with other structures or installations (beams, piers, pipes, wires, etc.).

Please also ensure that there are no obstacles on the outside of the wall, which may obstruct air circulation through the drilled holes, for example: plants and their leaves, slats or paneling, drain pipes, overflows and gratings, etc.). Any obstruction could interfere with the correct performances of the air conditioner.

8.2 Paper template (P4)

Fasten the template to the wall once the following guidelines have been thoroughly checked.

• Do not drill any holes until you are completely confident that there are no obstacles in the area you wish to drill and there are no obstructions, which could be hidden by the construction of the wall, for example: Electrical wiring water & gas pipes or supporting lintels or beams.

• Ensure that a spirit level is used, as the air conditioner must be level.

• Follow the installation instructions in full.

8.3 Drilling the wall (P5)

Please note: If you are drilling the hole above ground floor level, please ensure that an area has been secured and while the holes are drilled the outside area is supervised, until drilling has been completed.

Intake and outlet holes

• This operation should be carried out using the proper tools (diamond tip or core borers drills with high twisting torque and adjustable rotation speed).

• Fasten the template to the wall taking care to check the distance from the floor or ceiling and keep it horizontal by using a spirit level.

• Use a pilot drill to mark the centre of each cores hole to be drilled.

Use a core boring head having a diameter of 162mm to drill the two holes for intake and outlet the air.

Note: It is recommended that the holes must have a slightly downward inclination of 3-5 degree to prevent any backflow of water from the pipes.

Drainage hole (P13)

This air conditioner has a double system to drain the condensate moisture automatically. Before install the air conditioner, choose which is the suitable system for your installation. Please read carefully the following instruction.

System “A” : drill a hole through the wall measuring 30mm in diameter in the position shown in the paper template. Drainage occurs by gravity. **For this reason, it is essential for the drain line to have a minimum downward inclination at least 3 degree throughout its length:** connect the drain pipe (from rubber terminal) to the air conditioner (back side) after unplugged the black rubber cup (see picture P13). With this solution, you can drain the condensate moisture to a suitable place to do not cause any problems to your neighbours. **If use system “A”, please do not unplug the black rubber cup from system “B”.**

System “B” : in case of impossibility to install the drainage pipe as shown on “A” system, please use system “B” to drain the condensate moisture to a suitable place. **If use system “A”, please do not unplug the black rubber cup from system “B”.**

8.4 Fastening the bracket (P6)

• Drill the holes for anchoring the fastening bracket to the wall using preferably the 6 holes showed in black on the paper template. If the wall is not sturdy enough, it is advisable to use extra anchor bolts using the holes showed in grey on the paper template.

• The anchor bolts provided require a 8mm holes, the wall should be inspected to determine if provided bolts are useful or if it is necessary to use a different anchorage. The manufacture is not liable in case of underestimation of the structural consistency of the anchorage made at the time of installation.

8.5 Installation of the pipes(P15,16,17)

• After drilling the holes, the plastic sheet supplied with the air conditioner need to be rolled up and fitted through them.

•Measure the depth of the wall and cut supplied plastic sheet. Roll up the sheet and seal the joint line with tape.

• Then, insert it into the hole and keep the joint line with upper position.

8.6 Fitting the gratings (P7,P8,P9,P10)

To fit the external two gratings, please proceed as followings: familiarise yourself with the fitting of the grating to the tube before installation. Insert the cords through the centre of the grating. One grating fits on the outside of the tube and the other fits inside. The air discharge is the bigger hole and the grating therefore fits on the outside of the air discharge tube. Insert the supplied cord into the hole. Fold the outer grating in half grasping the cord with your free hand. Insert your arm inside the pipe with the grating and push all the way to the outside. Let the grating unfold and pull the cord toward you. One grating fits on the outside of the tube and the other fits inside. With a little patience and manipulation, the 2 gratings will fit the end of the tubes. Grasping the cord, insert our fingers between the fins and pull the grating toward you until the same is properly slipped in the pipe, keeping the fins in vertical position.

If the external grating is accessible to prevent its removal, it is recommended to fasten it to the wall with wall plugs and screws with a diameter of 6mm. Tighten the cord and fasten it to the dent on the internal flanges.

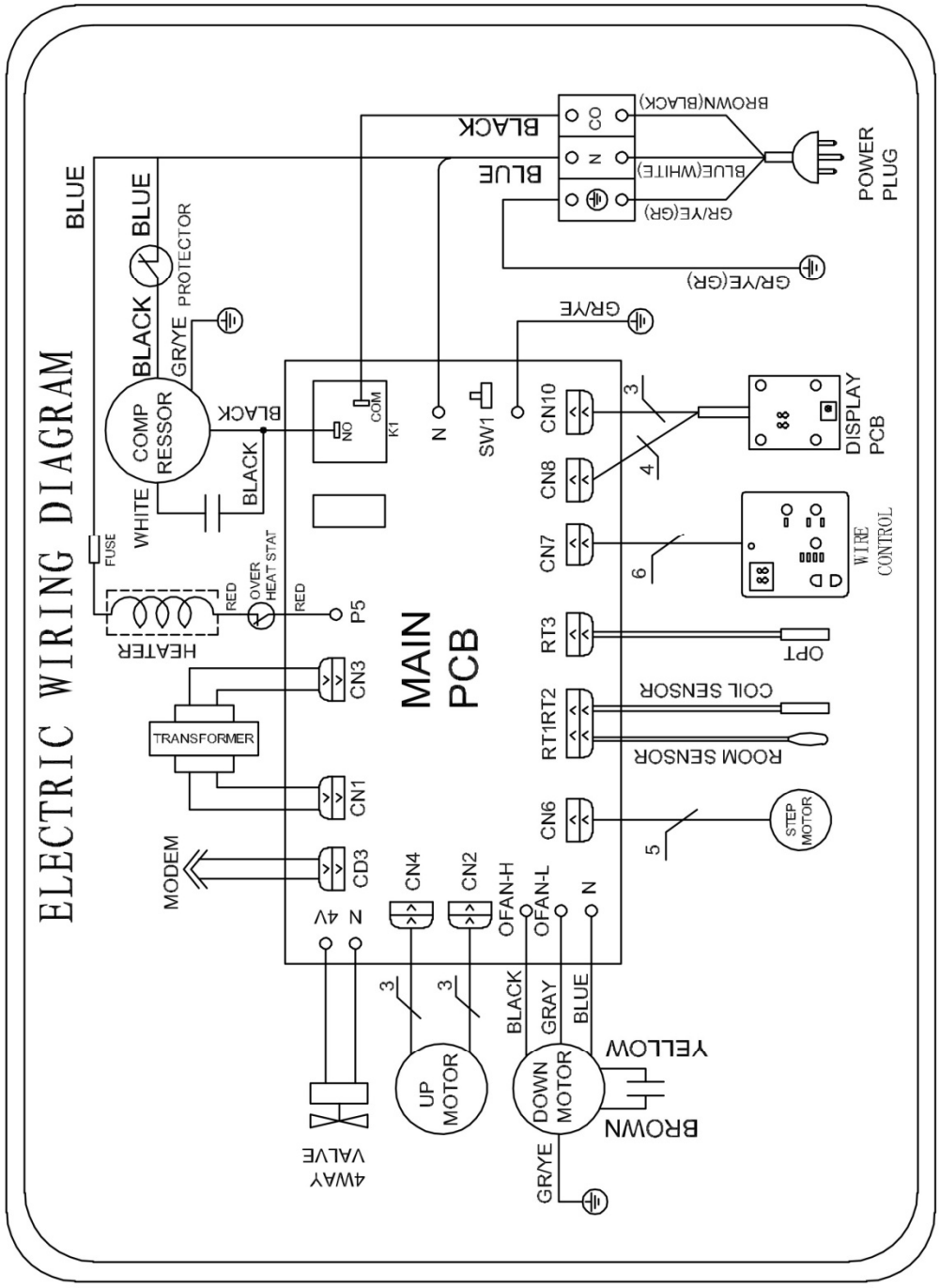
8.7 Fitting the air conditioner on bracket (P11, P12)

After checking again that the fastening bracket is securely fastened to the wall, and that any necessary preparations for electric connection and condensate drainage (if it needs) have been made, fasten the air conditioner to its supporting bracket. Lift up by holding the sides at the bottom. Tilt the air conditioner slightly toward you to facilitate the operation of fastening it to the bracket. The air conditioner can now be pushed firmly against the wall. Inspect carefully the installation to make sure that the insulation back panel must fit firmly against the wall and there are no fissures at the back of the air conditioner and that the two plastic semicircle on the back side of the air conditioner are placed inside of the two plastic hoses fixed inside the wall.

NOTE:

- **The appliance shall not be installed in the laundry.**
- **The appliance must be positioned so that the plug is accessible.**
- **The appliance shall be installed in accordance with national wiring regulations.**

9. Electric wiring



10. Description of software operation

10.1 Main technical index

PCB should be according with the following conditions:

• Measured from the receiver，the receiving distance of remote control≥8m，receiving angle≤60° cone angle；

• Discrepancy of temperature control≤±1℃；

• Discrepancy of time control≤5min/24h；

• Discrepancy of fan speed：±10rpm；

• Rated power supply：AC230±20%，～50Hz；

• PCB should accord with RoHS.

10.2 Definition

• RT：room temperature.

• IPT：indoor coil temperature.

• ST：setting temperature，range 18～30℃

• OPT：outdoor coil temperature.

• PTC data：R25=5.OK±1% B25/50=3470±1%

10.3 Mode introduction

10.3.1 Auto mode

After running the unit by ON/OFF key or choose the auto running mode by remote control, it will fix its running mode by judging room temperature (see below table):

Indoor temp.	**Indoor temp.≤20℃**	**20℃＜indoor＜25℃**	**indoor≥25℃**
Running mode	heating（cooling & heating） fan （cooling only）	fan（cooling & heating） dehumidify（cooling only）	cooling
Standard fixed setting temperature	20℃	22℃	25℃

a. When Auto mode is selected, unit would check room temperature first and work with fixed mode as above accordingly. Every 6 minutes, unit would check room temperature again, running mode would be changed according with update room temperature.
b. If working mode is changed by remote control, unit has 3 minutes delay protection for compressor.
c. Fan speed selection: work with setting speed.
d. Unit has protection function during Auto mode, including 3 minutes delay function, Anti-cold function before heating, Over heating protection during heating function, Anti-frozen during cooling mode, and E1,E2,E3,E4 protection.

10.3.2 Cooling mode

10.3.2.1 Setting temperature range：18℃-30℃。

10.3.2.2 Compressor working conditions：

a. Compressor works when RT≥ST+1℃；

b. Compressor stops when RT ≤ST-1℃；

c. -1℃＜RT-ST＜+1℃，compressor maintains the original state。

(RT: room temperature, ST: setting temperature)

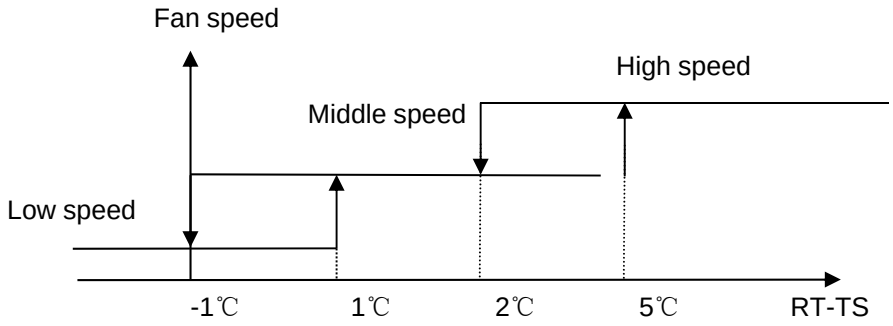
10.3.2.3 Four-way valve working conditions: no power supply.

10.3.2.4 Outdoor fan motor would start or close same time as the compressor.

10.3.2.5 Indoor fan speed control:

a. Indoor fan will work as Auto speed, low speed, middle speed or high speed.

b. For Auto speed, indoor fan will work as following chart:



10.3.3 Dehumidify mode

10.3.3.1 Setting temperature：18℃-30℃。

10.3.3.2 Work conditions：Action will accord to the indoor temperature and the setting temperature.

NO	conditions	Indoor fan motor	Outdoor fan motor	compressor	Four-way valve
1	RT≥Ts	Fix in low speed fan	Keep running	Keep running	No power supply
2	RT<Ts	Fix in low speed fan	Works for 10 minutes and then stops for 6 minutes		

Note: In dry mode, after unit goes into dry cycle, it will not change the above working cycle when indoor temperature changed.

10.3.3.3 When RT≤14℃，dry mode no works, indoor fan works with low speed. When RT>16℃, unit would work normally.

10.3.3.4 Four-way valve：no power supply.

10.3.3.5 Outdoor fan motor would start or close same time as the compressor.

(RT: room temperature, ST: setting temperature)

10.3.4 Heating mode

10.3.4.1 Setting temperature range：18℃-30℃。

10.3.4.2 Compressor working conditions：
a. Compressor starts condition: RT≤ST+1℃.
b. Compressor stops condition: RT＞ST+3℃；
c. +1℃＜ST-RT≤+3℃，compressor keeps original working state。
(RT: room temperature, ST: setting temperature)

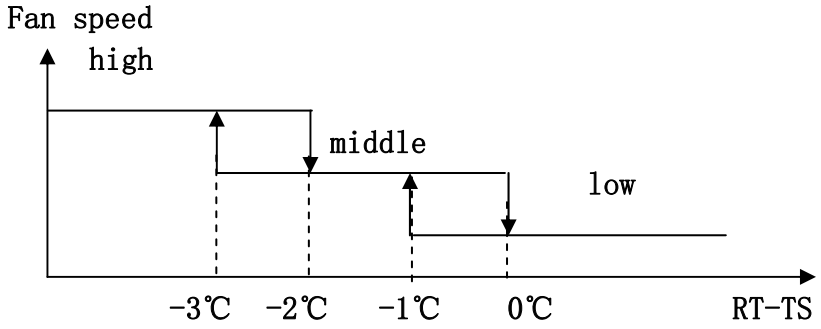
10.3.4.3 When machine works first time, unit would not check room temperature, and compressor starts directly. Only after 3 minutes, unit would check room temperature, compressor would work according with room temperature.

But unit would check indoor coil temperature as following:
a. If coil temp≥38°, indoor fan works.
b. If coil temp＜38°, indoor fan does not work, with "1 minute Anti-cold protection". 1 minute later, indoor fan would work as setting speed.
c. If coil temp≥55°, compressor and indoor fan work, outdoor fan stops working.
d. If coil temp≥64°, compressor and outdoor fan do no work, only indoor fan works.

10.3.4.4 Four-way valve working conditions:
During heating mode, four-way valve is always open (including turning off when unit reaches setting temperature, but except defrost course). When unit is turned into heating mode or turned on, four-way valve will open 5 seconds earlier than compressor. When heating mode is changed or unit is turned off, four-way valve will close 2 minutes later than compressor.

10.3.4.5 Outdoor fan motor working conditions:
Start or close same time as the compressor. (When unit goes into defrost or over heating protection, it will work according defrost or over heating protection function).

10.3.4.6 Indoor fan speed control:
a. Indoor fan will work as Auto speed, low speed, middle speed or high speed.
b. For Auto speed, it will work as following chart:



10.3.4.7 Anti-cold function:
After unit going into heating mode, it would check indoor coil temperature. When IPT≥38℃, indoor fan motor will run as setting speed. When IPT＜38℃,indoor fan would not run, After compressor running for 60 seconds, indoor fan would run again. With anti-cold function, the yellow timer led will flash with 0.5Hz frequency. (IPT is indoor coil temperature) .

10.3.4.8 Blowing residual heat function:
In heating mode, when room temperature rises up to setting temperature, compressor will stop first, and indoor fan will work with low speed for 60 seconds, then stop.

10.3.4.9 Defrost function in heating mode: (controlled by outdoor coil sensor)

10.3.4.9.1 Defrost conditions:(controlled by outdoor coil sensor)
1. unit goes into heating pump or works after defrost cycle for 30 minutes
2. compressor continuously runs over 5 minutes,
3. outdoor coil sensor ≤-5℃ for one minute
If meet all above 3 conditions, unit would begin defrost cycle.

10.3.4.9.2 Defrost procedure is as following:
1. Stop the aux electrical heater first if unit has this function.
2. 3 seconds later, compressor, outdoor fan and indoor fan stop working.
3. 1 minute later, 4-way valve stops.
4. Compressor will work again after 90 seconds

10.3.4.9.3 Relieving defrost conditions:
After compressor running for 5 minutes, when outdoor coil temperature rises up to 15℃, defrost cycle will be relieved automatically, and unit goes into normal heating mode. For each defrost cycle, the time is no more than 12 minutes (does not include compressor close time), even outdoor coil temperature is less than 15℃. Each defrost cycle time is 5-12 minutes.

10.3.4.9.4 Relieving defrost procedure is as following:
1. Outdoor fan will run first, compressor and indoor fan close.
2. Four-way valve will work after 1 minute.
3. Compressor will work again after 30 seconds, indoor fan will work with anti-cold air function, and defrost cycle is off. Aux electrical heater will work as original function if unit has this function.

Note: 1. During defrost cycle, yellow Timer led will flash with 1Hz frequency.
2. Temperature detection is valid only when compressor is working.
3. If outdoor coil sensor is damaged, unit will work with Auto-defrost cycle. 30 minutes works, and 12 minutes defrosts.

10.3.4.10 Electrical heater function

1. Auto aux electrical heater function:
When compressor is working for 10 minutes in heating mode, unit would check room temperature:
a. When RT≤13℃, (WZ-28,32, RT≤18℃) aux electrical heater is ON.
b. When RT≥20 ℃, (WZ-28,32, RT≥ 22℃) aux electrical heater is OFF.
c. When RT≤13℃ again, (WZ-28,32, RT≤18℃) aux electrical heater would be on again.
** Over heat protection: When indoor coil temperature ≥ 55 ℃, electrical heater would be off. When indoor coil temperature ≤48℃, the heater would work again.

2. Manual aux electrical heater function:
a. Unit is working with heating mode, and compressor is working for 4 minutes.
b. Indoor fan is working well.
c. Unit is not with defrost function.
d. Room temperature RT＜25 ℃.
If meet all the above 4 conditions, unit could work with manual aux electrical heater function by pressing Heater button on PCB or remote control. Same time, auto electrical heater function is invalid.
e. When Room temperature RT ≥ 25 ℃, electrical heater would be off.
f. When Room temperature RT ＜25 ℃, electrical heater would work again.
** Over heat protection: When indoor coil temperature ≥ 55 ℃, electrical heater would be off. When indoor coil temperature ≤48℃, the heater would work again.

10.3.5 Fan mode

10.3.5.1 Compressor working state: stop

10.3.5.2 Four-way valve: out of electric power supply.

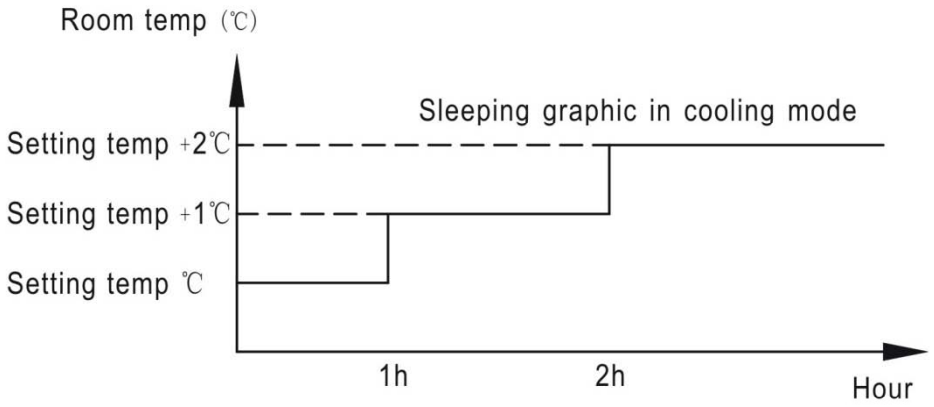
10.3.5.3 Outdoor unit fan motor: stop

10.3.5.4 Indoor unit fan motor: have auto, low, middle and high speed, same with the cooling mode.

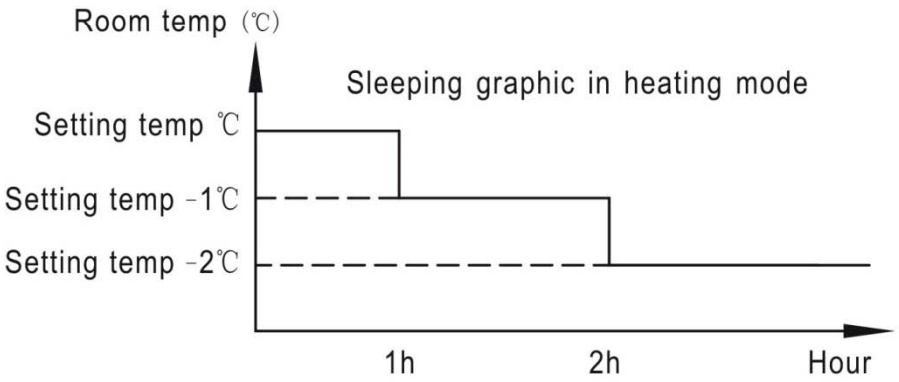
10.3.6 Sleeping mode

10.3.6.1 Sleeping mode only works in Heating or Cooling mode, or cooling/heating under Auto function.

10.3.6.2, At the beginning of sleeping running in Cooling mode, if room temperature＞ setting temperature, the compressor, outdoor motor and indoor motor will work, and four-way valve will be close. If room temperature≤ setting temperature, it will directly go into sleeping working fluctuation (see below graphic). Fan speed will be fixed with low speed. Flap direction can be adjusted or stay with one position.



10.3.6.3 At the beginning of sleeping running in Heating mode, if room temperature ＜ setting temperature, the compressor, outdoor fan motor, indoor fan motor and four-way valve will work. If room temperature ≥setting temperature, it will directly go into sleeping working fluctuation (see below graphic). Fan speed will be fixed with low speed. Flap direction can be adjusted or stay with one position.



10.3.7 Timer function

10.3.7.1 Pressing Timer button on remote control to set Timer Off during unit is working, and set Timer On during unit is close.

10.3.7.2 Temperature rising key in the remote control is hour setting, each pressing will increase one hour, and every cycle is 24 hours. Temperature dropping key is minute setting, each pressing will increase 10 minutes, and every cycle is 60 minutes.

Clock setting: Pressing clock key on the remote control, screen would display time signal with flashing. Then pressing temperature rising and dropping keys, time could be adjusted. Temperature rising key is hour setting, each pressing will increase one hour, and every cycle is 24 hours. Temperature dropping key is minute setting, each pressing will increase 10 minutes, and every cycle is 60 minutes.

10.3.8 Emergency function (Not available for the user)

10.3.8.1 There is one emergency button on the machine. When the remote control is missed or damaged, can use this button to go into the auto running. If the unit stands by, press this button can turn on the machine and go into the auto mode running, indoor unit motor will run auto fan speed.

10.3.8.2 Press this button can turn off the machine when the machine is running.

10.3.8.3 During the emergency running, when receive the effective signal from the remote control, it will exit the emergency running and process the setting of the remote control.

10.4 Flap panel control

• Use the step motor to control the flap panel moving, run or stop according to the flap order.

10.5 Protection function

10.5.1 Compressor 3 minutes delay protection.

a. The compressor will run immediately when it works with first time.

b. Compressor must stops for 3 minutes and reworks again (Except defrost function in heating mode).

10.5.2 Anti-frozen protection in cooling and dry mode.

a. If indoor coil temperature ≤-1℃ for 2 minutes, compressor and outdoor fan motor will stop, indoor fan motor will keep working state and unit goes into anti-frozen protection.

b. When indoor coil temperature ≥8℃, compressor and outdoor fan motor will rework again if the 3 minutes delay protection is over, and unit would exit anti-frozen protection function.

Note: If indoor coil sensor is damaged, anti-frozen protection is no use, unit will display E2.

10.5.3 Over-heat protection in heating mode.

In heating mode:

a. When indoor coil temperature ≥55℃， outdoor fan motor will stop.

b. When indoor coil temperature ≤48℃， outdoor fan motor would work again.

c. When indoor coil temperature ≥64℃， compressor and outdoor fan motor will stop together.

d. When indoor coil temperature ≤48℃， proceed normal working (when 3 minutes delay protection is over, compressor and outdoor fan motor would work immediately.).

In this case, four-way valve always opens and indoor fan motor always runs with setting speed.

Note: If indoor coil sensor is damaged, over-heat protection is no use, unit will display E2.

10.5.4 Sensor damage protection

10.5.4.1 Room temperature sensor failure:

If room temperature is lower than -40℃ or higher than 120℃， room temperature sensor is supposed to be damaged, unit goes into protection mode as below, and unit will display E1 and work as below:

a. Compressor will work with 20 minutes on and 5 minutes off in cooling or heating mode.

b. Compressor will work with 10 minutes on and 6 minutes off in dry mode.

c. Unit will work with fan function if unit is in auto mode.

10.5.4.2 Indoor coil temperature sensor failure:

If indoor coil temperature is lower than -30℃ or higher than 90℃， indoor coil temperature sensor is supposed to be damaged, unit will display E2 and work with above E1 failure function.

10.5.4.3 Outdoor coil sensor failure: Unit would work with Auto-defrost cycle, compressor work with 30 minutes on, and 12 minutes defrost. If all room temp sensor and indoor coil sensor are damaged, unit would work with 50 minutes on and 3 minutes defrost.

Note: If both room temperature sensor and indoor coil sensor sensor are damaged, unit will display E1, and work with room temperature sensor failure function.

10.5.5 Indoor PG motor problem protection

If indoor fan motor could not receive the feedback pulse for 5 seconds, it would close. Compressor, outdoor fan motor, valve and aux electrical heater will close same time. Indoor unit fan motor would run again after 10 seconds, if still do not receive the speed feedback signal, unit close and display E3.

10.5.6 Refrigerant insufficient protection

After compressor running for 20 minutes in cooling mode, if indoor coil temperature ≥ room temperature - 2℃, and time keeps 40 minutes, unit would stop working and display E4.

After compressor running for 20 minutes in heating mode, if indoor coil temperature ≤ room temperature + 2℃, and time keeps 40 minutes, unit would stop working and display E4.

10.5.7 Failure Error code display

If there are problems with some specified components, unit would display failure codes as below:

Failure situation	**Running light flash**	**Code**
RT sensor Failure	1/time	E1
IPT sensor Failure	2/time	E2
Indoor PG Motor Failure	Work 1.5S/Stop 0.5S	E3
Refrigerant Insufficient Protection	Work 1.5S/Stop 1S	E4

If above 2-4 failure codes display same time, each failure code would be displayed with 5 seconds.

10.6 Combination button function

With this function, outdoor condenser fan could only work with low speed for noise purpose.

1. Unit should be with standby condition.
2. Click “FAN” and “MODE” buttons on the command on board same time, and listen “beep” times from main PCB.
3. 3 times “beep”, means the unit is working with low condenser fan mode all the time, even the indoor fan is working with high speed.
4. 1 time “beep”, means the unit is working with normal condenser fan mode. When indoor fan is working with high speed, outdoor condenser fan would work with high speed same time.

10.7 Speed

WZ-32: Cooling: 1250rpm/1000rpm/900rpm Heating:1130rpm/1000rpm/900rpm

NTC sensor table:			R25=5.0K 1%				
Temp° C	Resistance value	Temp° C	Resistance value	Temp° C	Resistance value	Temp° C	Resistance value
-1	14.8903	27	4.6300	55	1.7216	83	0.733
0	14.2293	28	4.4569	56	1.6663	84	0.713
1	13.6017	29	4.2912	57	1.6131	85	0.693
2	13.0055	30	4.1327	58	1.5618	86	0.674
3	12.4391	31	3.9808	59	1.5123	87	0.655
4	11.9008	32	3.8354	60	1.4647	88	0.638
5	11.3890	33	3.6961	61	1.4188	89	0.620
6	10.9023	34	3.5626	62	1.3746	90	0.604
7	10.4393	35	3.4346	63	1.3319	91	0.587
8	9.9987	36	3.3120	64	1.2908	92	0.572
9	9.5794	37	3.1943	65	1.2511	93	0.556
10	9.1801	38	3.0815	66	1.2128	94	0.542
11	8.7999	39	2.9733	67	1.174	95	0.527
12	8.4377	40	2.8694	68	1.139	96	0.514
13	8.0925	41	2.7697	69	1.105	97	0.500
14	7.7635	42	2.6740	70	1.072	98	0.487
15	7.4498	43	2.5821	71	1.040	99	0.475
16	7.1506	44	2.4939	72	1.009	100	0.462
17	6.8652	45	2.4091	73	0.980	-2	15.5800
18	6.5928	46	2.3276	74	0.951	-3	16.3200
19	6.3328	47	2.2493	75	0.923	-4	17.0000
20	6.0846	48	2.1740	76	0.897	-5	17.9030
21	5.8475	49	2.1017	77	0.871	-6	18.7603
22	5.6210	50	2.0320	78	0.846	-7	19.6703
23	5.4046	51	1.9651	79	0.822	-8	20.6300
24	5.1978	52	1.9007	80	0.798	-9	21.6403
25	5.0000	53	1.8387	81	0.776	-10	22.7103
26	4.8109	54	1.7790	82	0.754	-11	23.7103

11. Precaution

When using electrical appliances, basic safety precaution should always be followed:

• Do not place objects on the product or allow objects to obstruct the inlet or outlet openings. Extreme care should be taken when any product is used by, or near children and pets, and whenever the product is left operating and unattended.

Please note:

Before operating the product, remove the air conditioner from its package and check it is in good condition.

• Do not let children play with the packaging, for example plastic bags.

• Do not operate any product with a damaged cord or plug, or after the air conditioner malfunctions, has been dropped, or damaged in any manner.

• Always operate the product from a power source of the same voltage, frequency and rating as indicated on the product identification plate.

• This air conditioner is not intended for use in wet or damp locations.

• Do not place the air conditioner near an open flame, cooking or heating appliance, or hot surface.

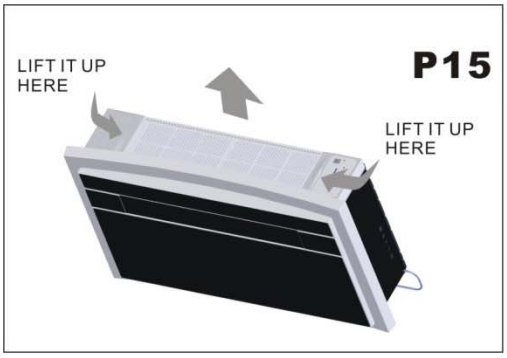
• Do not let the power cord hang over the edge of a table or counter. Arrange the power cord away from an area where it may be tripped over.

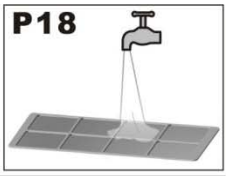
• Never place the power cord under a carpet or rug. Do not operate the air conditioner in areas where petrol, paint, or other flammable liquids are used or stored.

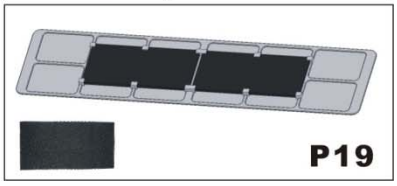
• Do not carry out any cleaning or maintenance or access internal parts until the air conditioner has been disconnected from the mains electricity supply.

• Avoid prolonged direct contact with the flow of the air from the air conditioner and the room being closed with no ventilating for a long period of time.

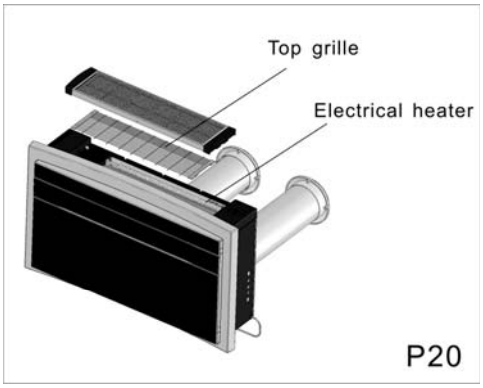
12. Ordinary maintenance







See pictures P15,P16,P17,P18,P19,P20



12.1 Filter cleaning:

The filters should be regularly cleaned to keep the air conditioner running efficiently. Clean the filters every two weeks.

How to proceed:

• Disconnection the air conditioner from the electrical supply.

• Extract the filter grating. (P15) on the same direction of the arrow. Take out the filter as shown on P17. Proceed to wash them (not use hot water) and only when are dried replace them in the same way.

ATTENTION:

Do not use the air conditioner without filters as it could seriously damage the air conditioner.

12.2 External cleaning:

• Disconnect the air conditioner from the electrical supply.

• Wipe external surfaces clean with a damp cloth only.

• Do not use an abrasive cloth and/or solvents, as this may damage the surfaces.

• Do not use excessively wet cloth or sponges, as water stagnation could damage the air conditioner and compromise safety.

12.3 Active carbon filter

The unit includes active carbon filter, which not only has the function of eliminating suspended matters that a common mechanical filter has, but also can eliminate foreign matters such as free chlorine, odors, colors and toxic matters that are difficult to filter out by using conventional approaches.

With active carbon filter, the room air would be fresh and good for the body health.

Is advised to change them every three month, because it’s not possible to wash or clean them.

12.4 Position of electrical heater

Electrical heater is positioned in the top of the machine, protected by the top grille. Do not try to touch it when it is working.

13. Problem and solution

Problem possible causes

• The air conditioner does not work

• The air conditioner does not refrigerate the room

• Strange smell in the room. Water drips from the air conditioner.

• The remote control doest not work.

• The air conditioner does not work for 3 minutes when switched on.

Possible solutions

1. Wrong setting the timer / check it.
2. Problems on the power supply / check it
3. The filter could be dirty / clean it
4. The room temperature is too high / wait until the temperature goes down
5. The temperature is not properly set / check it
6. The grids could be obstructed / check and remove the eventual obstacles
7. Dampness in the room, coming from walls, carpet, furnishing or similar
8. Wrong installation of the air conditioner
9. Wrong connection of the drainage pipe
10. Exhausted batteries
11. Wrong insertion of the batteries inside the remote control
12. Protection of the air conditioner. Wait for 3 minutes and the air conditioner will start to work again.

REMARK:

If the supplied cord is damaged, it must be replaced again.

The max operation temperature for the air conditioner:

Max cooling: outdoor DB43℃ / WB26℃, indoor DB32℃ / WB23℃,

min heating: outdoor DB-5℃ / WB-6℃, indoor DB20℃

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