



Package AHU Service Manual

(GC201112-I)


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PRODUCT

PRODUCT

1. Product Data

Product Name	Code	Air Flow Rate (m ³ /h)	Cooling Capacity(kW)		Heating Capacity(kW)		Appearance
			4 Rows	6 Rows	4 Rows	6 Rows	
G-1.5WD/B	EM50900110	1500	8.4	12.03	13.7	17.28	
G-2WD/B	EM50900070 EM50900071 EM50900072	2000	14.1	13.50	17.96	19.58	
G-2.5WD/B	EM50900100	2500	14.1	18.42	22.27	27.2	
G-3WD/B	EM50900090 EM50900091 EM50900092	3000	17.11	21.53	27.8	30.13	
G-4WD/B	EM50900080 EM50900081	4000	22.5	28.78	34.55	42.79	
G-5WD/B	EM50900120 EM50900121	5000	28.69	36.19	43.4	53.9	
G-6WD/B	EM50900130	6000	33.47	43.52	52.7	63.4	
G-7WD/B	EM50900140	7000	39.04	53.22	62.8	77.17	
G-8WD/B	EM50900150	8000	44.62	59.7	66.8	87.56	

2. Nomenclature

G	—	1.5	W	D	X	I	Y	/	B
1		2	3	4	5	6	7		8

No.	Description	Options
1	Product Type	Package AHU
2	Nominal Airflow Rate	×1000m ³ /h
3	Structure	W-Horizontal;Default-Vertical
4	Installation Manner	D-Ceiling Type;Default-Floor Standing Type
5	Product Function	X- Fresh Air Type;Default: Return Air Type
6	Heat Exchanger Coil Rows	I-6;Default: 4
7	Location of the Water Inlet Pipe	Y-Right Side;Default: Left Side
8	Design No.	B-Ultra-Slim

Notes:

As for the location of the water inlet/outlet pipe, “right” or “left”, it is determined when facing the return air inlet.

Taking G-12XIY for example, it indicates a vertical, floor-standing, fresh air type package AHU with the airflow rate of 12000 m³/h, 6 rows of heat exchanger coil and right-side water inlet pipe.

Another example “G-1.5WDXIY/B” indicates a slim, horizontal, ceiling-mounted, fresh air type package AHU with the airflow rate of 15000 m³/h, 6 rows of heat exchanger coil and right-side water inlet pipe.

3. Product Features

The ultra-slime structure helpfully saves much installation space and cost.

3.1 Horizontal Package AHU (Ultra-Slim)

Ultra-Slim Structure

The ultra-slime structure helpfully saves much installation space and cost.

Powerful Rust-proofing

With the electro-galvanized outer surface, the hot-dip galvanized inner surface, and foamed panel of high-insulating performance, it can function strongly against corrosion, rusting and sweating.

Convenient Service and Maintenance

The detachable panel and the adjustable motor base greatly facilitate the service and maintenance.

4. Technical Data

4.1 Ultra-Slim, Horizontal, Fresh Air Type Package AHU

Model		G-1.5WD/B	G-2WD/B	G-2.5WD/B	G-3WD/B		
Item							
Code		EM50900110	EM50900070 EM50900071 EM50900072	EM50900100	EM50900090 EM50900091 EM50900092		
Nominal Air Flow Rate		m ³ /h	1500	2000	2500	3000	
4 Rows	Cooling Capacity	kW	8.4	11.03	14.1	17.11	
	Heating Capacity	kW	13.7	17.96	22.27	27.8	
	Water Flow Rate	L/s	0.41	0.53	0.67	0.86	
	Resistance to Water Flow	kPa	5	7	8	11	
	ESP Range (Ref.)	Pa	40-300	40-300	50-350	50-350	
	ESP Range 1 and Motor Power	ESP Range 1	Pa	40-300	40-300	50-210	50-140
		Motor Power	kW	0.55	0.55	0.55	0.55
	ESP Range 2 and Motor Power	ESP Range 2	Pa	-	-	210-350	140-230
		Motor Power	kW	-	-	0.75	0.75
	ESP Range 3 and Motor Power	ESP Range 3	Pa	-	-	-	230-350
		Motor Power	kW	-	-	-	1.1
	Net Weight	kg	105	125	125	160	
	Gross Weight	kg	130	160	160	195	
	Unit Dimensions (WDXH)	cm	110X102X44	140X112X46	140X112X46	168X112X46	
Package Dimensions(WDXH)	cm	128X11X59.5	158X123X61.5	158X123X61.5	178X123X61.5		
Stacks		2	2	2	2		
6 Rows	Cooling Capacity	kW	12.03	13.50	18.42	21.53	
	Heating Capacity	kW	17.28	19.58	27.2	30.13	
	Water Flow Rate	L/s	0.57	0.65	0.88	1.03	
	Resistance to Water Flow	kPa	7	9	11	13	
	ESP Range (Ref.)	Pa	40-300	40-300	50-350	50-350	
	ESP Range 1 and Motor Power	ESP Range 1	Pa	40-300	40-300	50-210	50-140
		Motor Power	kW	0.55	0.55	0.55	0.55
	ESP Range 2 and Motor Power	ESP Range 2	Pa	-	-	210-350	140-230
		Motor Power	kW	-	-	0.75	0.75
	ESP Range 3 and Motor Power	ESP Range 3	Pa	-	-	-	230-350
		Motor Power	kW	-	-	-	1.1
	Net Weight	kg	140	160	160	180	
	Gross Weight	kg	165	200	200	210	
	Unit Dimensions (WDXH)	cm	110X102X44	140X112X46	140X112X46	168X112X46	
Package Dimensions(WDXH)	cm	128X113X59.5	158X123X61.5	158X123X61.5	178X123X61.5		
Stacks		2	2	2	2		
Power Cord (Ref.)	mm ² ×Qty	1.0×3					
Power Supply		380V, 3-Phase, 50Hz					
Electric Insulation Level		I					
Noise at Min ESP	dB(A)	≤53	≤55	≤56	≤58		
Coil	Structure	Copper Tube-Fin					
	Operating Pressure	≤1.6Mpa					
Fan	Type	Forward-Curved, Low Noise, Centrifugal					
	Drive	Belt Drive					
	Qty	1					
Motor	Type	Insulation Class F, 3-phase Asynchronous					
Pipeline	Water Inlet Pipe	DN40					
	Water Outlet Pipe	DN40					
	Drain Pipe	DN 25					

Model			G-4WD/B	G-5WD/B	G-6WD/B	G-7WD/B	G-8WD/B	
Item								
Code			EM50900080 EM50900081	EM50900120 EM50900121	EM50900130	EM50900140	EM50900150	
Nominal Air Flow Rate		m ³ /h	4000	5000	6000	7000	8000	
4 Rows	Cooling Capacity		kW	22.5	28.69	33.47	39.04	44.62
	Heating Capacity		kW	34.55	43.4	52.7	62.8	66.8
	Water Flow Rate		L/s	1.08	1.37	1.68	2.01	2.33
	Resistance to Water Flow		kPa	13	16	15.8	17	18
	ESP Range (Ref.)		Pa	65-350	65-350	75-400	75-400	90-450
	ESP Range 1 and Motor Power	ESP Range 1	Pa	65-150	65-160	75-280	75-200	90-320
		Motor Power	kW	0.75	1.1	1.5	1.5	2.2
	ESP Range 2 and Motor Power	ESP Range 2	Pa	150-250	160-280	280-400	200-400	320-450
		Motor Power	kW	1.1	1.5	2.2	2.2	3.0
	ESP Range 3 and Motor Power	ESP Range 3	Pa	250-350	280-350	-	-	-
		Motor Power	kW	1.5	2.2	-	-	-
	Net Weight		kg	195	235	235	280	325
	Gross Weight		kg	230	290	290	340	390
	Unit Dimensions (WXDXH)		cm	208X112X46	218X132X56	218X132X56	238X132X56	238X132X66
Package Dimensions(WXDXH)		cm	218X123X61.5	228X143X71.5	228X143X71.5	248X143X71.5	248X143X81.5	
Stacks			2	2	2	2	2	
6 Rows	Cooling Capacity		kW	28.78	36.19	43.52	53.22	59.7
	Heating Capacity		kW	42.79	53.9	63.4	77.17	87.56
	Water Flow Rate		L/s	1.38	1.73	2.08	2.54	2.85
	Resistance to Water Flow		kPa	16	19	20.8	21	22
	ESP Range (Ref.)		Pa	65-350	65-350	75-400	75-400	90-450
	ESP Range 1 and Motor Power	ESP Range 1	Pa	65-150	65-160	75-280	75-200	90-320
		Motor Power	kW	0.75	1.1	1.5	1.5	2.2
	ESP Range 2 and Motor Power	ESP Range 2	Pa	150-250	160-280	280-400	200-400	320-450
		Motor Power	kW	1.1	1.5	2.2	2.2	3.0
	ESP Range 3 and Motor Power	ESP Range 3	Pa	250-350	280-350	-	-	-
		Motor Power	kW	1.5	2.2	-	-	-
	Net Weight		kg	200	250	250	300	350
	Gross Weight		kg	235	300	300	360	415
	Unit Dimensions (WXDXH)		cm	208X112X46	218X132X56	218X132X56	238X132X56	238X132X66
Package Dimensions(WXDXH)		cm	218X123X61.5	228X143X71.5	228X143X71.5	248X143X71.5	248X143X81.5	
Stacks			2	2	2	2	2	
Power Cord (Ref.)		mm ² ×Qty	1.0×3	1.5×3				
Power Supply			380V, 3-Phase, 50Hz					
Electric Insulation Level			I					
Noise at Min ESP		dB(A)	≤59	≤60	≤60	≤61	≤63	
Coil	Structure		Copper Tube-Fin					
	Operating Pressure		≤1.6Mpa					
Fan	Type		Forward-Curved, Low Noise, Centrifugal					
	Drive		Belt Drive					
	Qty		1					
Motor	Type		Insulation Class F, 3-phase Asynchronous					
Pipeline	Water Inlet Pipe		DN40	DN50				
	Water Outlet Pipe		DN40	DN50				
	Drain Pipe		DN25					

Notes:

- 1) The design of this product complies with JB/T9066-1999.
- 2) Parameters listed above are measured under the conditions as stated below:
- 3) Nominal Cooling Condition: DB/WB: 27/19.5°C , Entering/Leaving Water Temperature: 7/12°C
- 4) Nominal Heating Condition: DB: 21°C , Entering Water Temperature: 60°C
- 5) The operating weight of this product is 1.2 times of that listed in the table above (not incl. the weight of the circulating water).
- 6) Parameters and appearance of this product is subject to change without notice owing to design improvement. Please always see the nameplate for the exact parameters.

5. Product Performance Correction

5.1 Return Air Type

Cooling Capacity Correction

Return Air °C \ Inlet Water Temp °C	5 °C	6 °C	7 °C	8 °C	9 °C	10 °C
DB 24°C, WB17°C	0.88	0.78	0.74	0.71	0.615	0.44
DB 25°C, WB18°C	1.01	0.905	0.835	0.784	0.736	0.512
DB 27°C, WB19.5°C	1.214	1.112	1.00	0.894	0.786	0.685
DB 28°C, WB21°C	1.425	1.323	1.214	1.102	0.982	0.876
DB 29°C, WB22°C	1.582	1.476	1.36	1.243	1.135	1.012
DB 30°C, WB23°C	1.742	1.633	1.514	1.40	1.284	1.165

Heating Capacity Correction

Return Air °C \ Inlet Water Temp °C	65 °C	60 °C	55 °C	50 °C	45 °C	40 °C
13°C	1.507	1.34	1.208	1.04	0.885	0.73
15°C	1.376	1.20	1.089	0.91	0.75	0.61
17°C	1.364	1.19	1.06	0.89	0.73	0.60
19°C	1.25	1.08	0.96	0.825	0.682	0.50
21°C	1.16	1.00	0.873	0.75	0.61	0.43
23°C	1.09	0.97	0.80	0.68	0.54	0.37

5.2 Fresh Air Type

Cooling Capacity Correction

Fresh Air °C \ Inlet Water Temp °C	5 °C	6 °C	7 °C	8 °C	9 °C	10 °C
DB 31°C, WB 25°C	0.862	0.811	0.763	0.712	0.664	0.611
DB 32°C, WB 26°C	0.942	0.891	0.842	0.793	0.744	0.692
DB 33°C, WB 27°C	1.022	0.971	0.922	0.871	0.813	0.764
DB 35°C, WB 28°C	1.101	1.052	1.00	0.952	0.903	0.842
DB 36°C, WB 29°C	1.193	1.141	1.091	1.033	0.982	0.934
DB 37°C, WB 30°C	1.282	1.234	1.182	1.123	1.071	1.012

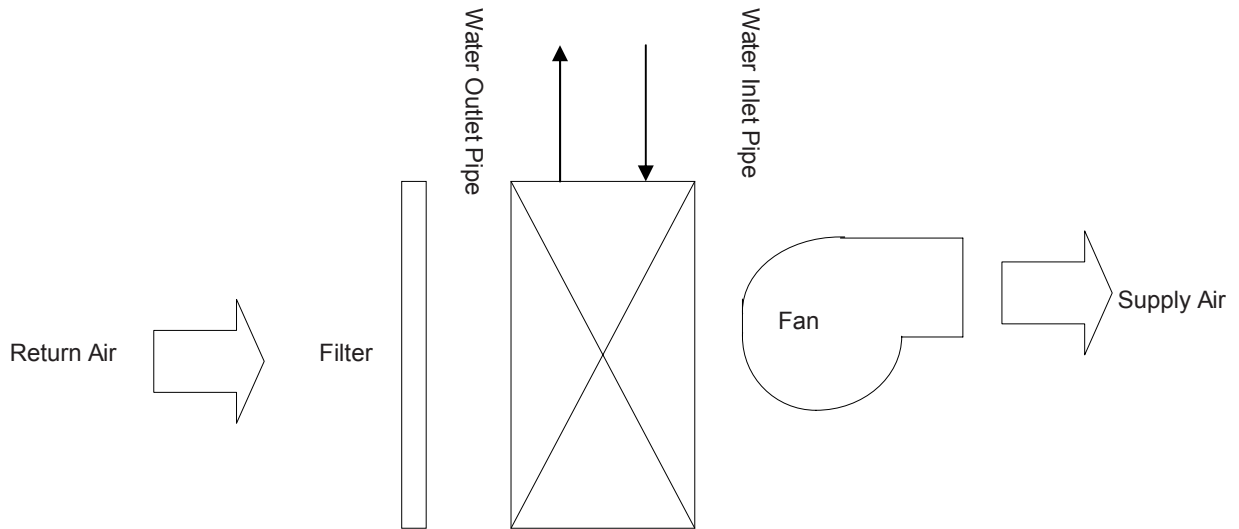
Heating Capacity Correction

Fresh Air °C \ Inlet Water Temp °C	65 °C	60 °C	55 °C	50 °C	45 °C	40 °C
10°C	1.081	0.972	0.883	0.771	0.672	0.571
7°C	1.102	1.00	0.912	0.813	0.712	0.611
4°C	1.143	1.041	0.952	0.851	0.753	0.652
1°C	1.212	1.111	1.022	0.921	0.823	0.724
-2°C	1.292	1.183	1.091	0.994	0.892	0.791
-5°C	1.364	1.256	1.164	1.063	0.961	0.863

6. Operating Principle and Control

6.1 Operating Principle

The cold (hot) water coming into the heat exchanger exchanges heat with the circulating air (return air or fresh air), and meanwhile the air is dehumidified and cleaned, after that, the conditioned air is delivered to each room.



INSTALLATION

INSTALLATION

1. Installation Tools

Tools for installing the duct and the unit include the general electric tools, special electric tools, and other tools.

1.1 General Electric Tools

- 1) Hand-held Electric Drill



Usage:

As one of the most widely used tools, it is mainly used to drill metal workpieces, and also applicable to the wooden, plastic workpieces, etc.

- 2) Cutting Machine



Usage:

With the use of the fiber reinforced cutting wheel, it is intended to cut the round or special shaped steel tube, cast iron tube, and angle steel, channel steel, flat steel formed material etc.

- 3) Grinding Machine



Usage:

With the use of the fiber reinforced linear grinding wheel, it is intended to cut/grind metallic workpieces, make the beveling before welding, and remove casing fins and burr at the edge of workpieces. With the use of the diamond-coated cutting wheel, it is intended to cut the non-metallic workpieces, such as, ceramic tile, stone block etc. With the use of the exclusive cutting wheel, it is intended to cut glass. With the use of the steel brush, it is intended for derusting. With the use of rubber pad and round sand paper, it is intended for polishing.

4) Electric Hammer



Usage:

With the use of the hard alloy drilling bit, it is intended to drill concrete, rock, brick, etc.

5) Percussion Drill



Usage:

It can be used in two differenced ways: under the spinning status, with the use of the spiral drilling bit, it can be used just like the electric drill; under the spinning and percussive status, with the use of the hard alloy drilling bit, it can be used to drill brick, concrete, ceramic and other brittle materials.

1.1.2 Special Electric Tools Hand-Held Electric Scissor



Usage:

It is intended to the cut the metal sheet with the cutting blade, particularly to trim the edge and the edge angle of the workpiece.

Electric Riveter



Usage:

It is intended to rivet the individual side of various structures with self-plugging rivets, particularly for the individual side of the hermetically-sealed structure.

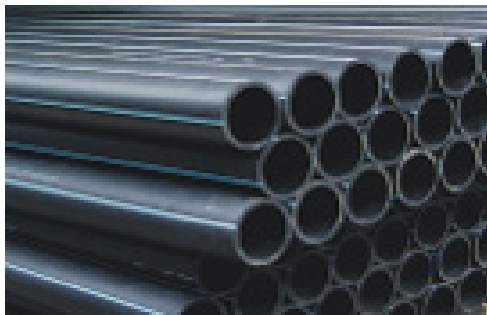
C Other Tools

Other most commonly used tools include the piper spanner, rubber hammer, scissor, wrench, ruler, tapeline, angle square, base cone, glue gun, brush, portable ladder, pulley etc.

1.2 Accessories

1.2.1 Piping

The drain pipe is the standard part. It is generally made of U-PVC and should be attached with special adhesive. Other alternative options include PP-R PP-C and hot-dip galvanized steel pipes, all of which are used with the male connector.



1.2.2 Sheet Material

It is mainly used to make of the ductwork, generally including galvanized steel sheet, general mild steel sheet, stainless steel sheet, aluminum sheet etc.

1) Galvanized Steel Sheet



Features:

The galvanized steel sheet is made by galvanizing the general steel sheet Q195, Q235A thick of 0.5-1.5mm. The galvanized coating is silver-colored and corrosion resistant and there is no need of paint over it. Do not use it for the ductwork under the acid-mist, moist environment.

Unless otherwise stated, the thickness of the galvanized steel sheet should be sized as shown in the table below.

Round Duct Diameter or Square Duct Length (mm)	Thickness(mm)	
	Normal Duct	Return/Supply Air Duct
$\delta \leq 320$	0.5	0.6
$320 < \delta \leq 450$	0.6	0.75
$450 < \delta \leq 630$	0.6	0.75
$630 < \delta \leq 1000$	0.75	1.0
$1000 < \delta \leq 1250$	1.0	1.2
$1250 < \delta \leq 2000$	1.0	As designed
$2000 < \delta \leq 4000$	1.2	As designed

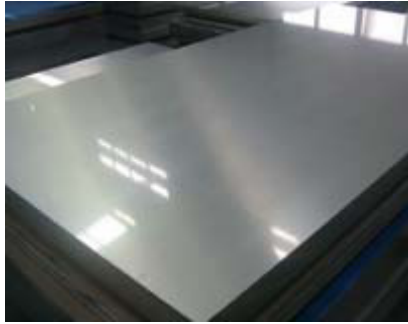
2) General Mild Steel Sheet



Features

The general mild steel sheet Q235-B (GB700-1988) is either hot rolled or cold rolled before supplied. It is ductile and processable, applicable to be welded, but it is likely to rust and requires to be painted.

3) Stainless Steel Sheet



Features

The stainless steel sheet contains large amount of chrome, nickel, and copper if possible. It is white-colored, high-temperature resistant, and corrosion resistant. Its corrosion resistance varies as different alloy is contained in it. It is usually used for the ductwork exposed to the corrosive environment.

4) Aluminum Sheet



Features:

It is divided into two types, pure aluminum sheet and alloy aluminum sheet. It is silver-colored and light-weighted. On its surface there is a tight aluminum oxide film. It is highly ductile, acid resistant, but is vulnerable to alkali and salts. It is usually used for the ductwork exposed to the acid environment. Additionally, it is usually used for the blast-proof ductwork as it generates few sparks when collided.

1.2.3 Drain Hose

The drain hose should be transparent so that it is easy to observe the flow inside the pipe. It is strongly recommended to keep the drain hose about 150mm long. The drain hose should be fixed through pipe clamp but instead of adhesive for the convenience of future service. Moreover, the drain hose is anti-vibration.



1.2.4 Insulation Material

This kind of material is mainly used for thermal insulation. It is usually made of loose fiber or porous material. At present, the most commonly used insulation for AHU is polyethylene foam and foamed rubber.

1) Polyethylene Foam (PEF)

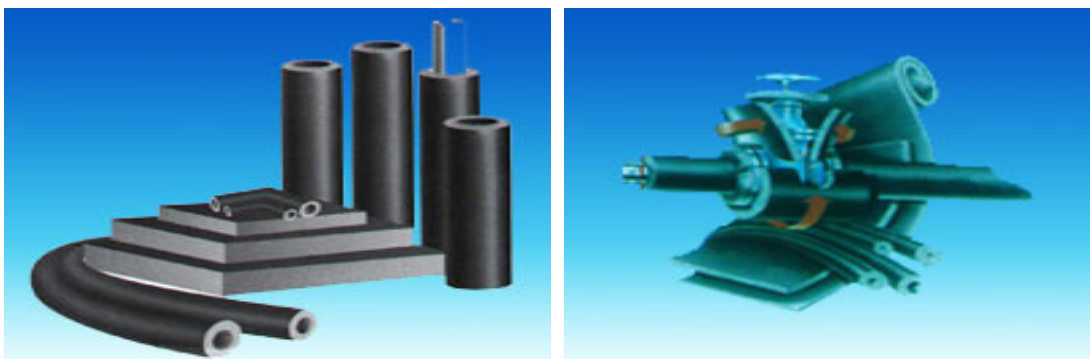
Features: adopting the state-of-the-art foaming technology, it is of excellent insulation performance, soft, light-weighted, fire-proof, and corrosion-resistant. With easy and convenient operation, it is widely used for the building, refrigeration storage, air conditioning equipments as well as low-temperature pipeline.



Foamed Rubber

Features: it is one kind of soft insulating material, mainly made of polyvinyl chloride and some other assistant ingredients through special foaming technology. It is closed-cell structured, elastic, with low density, low thermal conductivity, and excellent weather resistance. Moreover, it is widely used, shock resistant, noise-absorbing, fire-retardant, and environmental friendly.

1.2.5 Suspender, Supporter



Specifications of Foam Rubber

Condensate Pipe	Thickness	Material
Various Pipe Diameters	≥15	Foamed Rubber Fire Retardant Level: B1 or above R
increase the thickness when exposed in the moist environment		

1.2.6 Power Cable

The specifications of the power cable should comply with the design requirement. If not required, the minimum sectional area of the individual wire of the cable under different wiring manner should observe the requirement covered in the user's manual.



1.2.7 Anti-corrosion Material

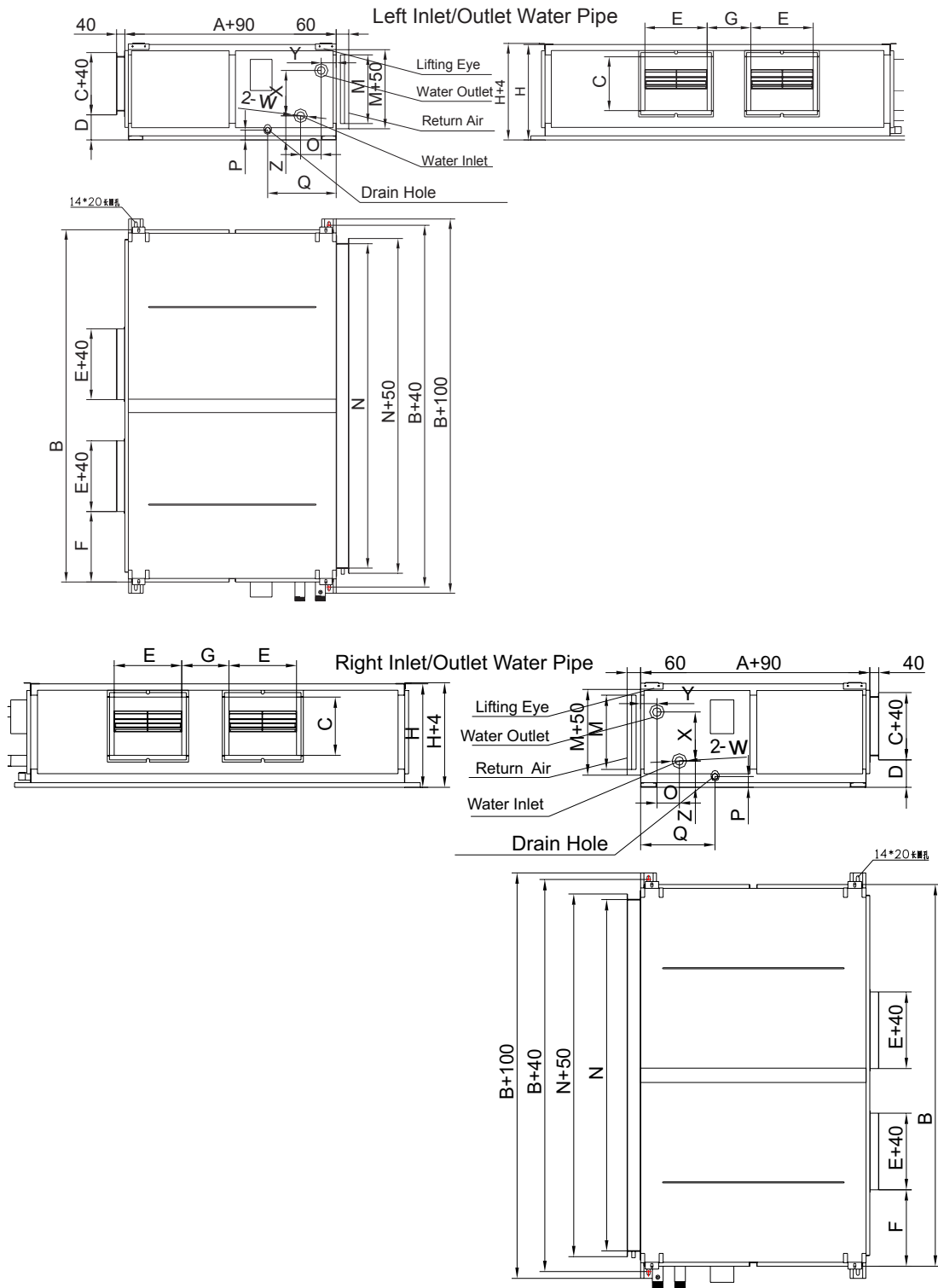


It generally includes paint, resin, asphalt etc.

2. Installation Requirements

2.1 Outline Dimensions and Installation Dimensions

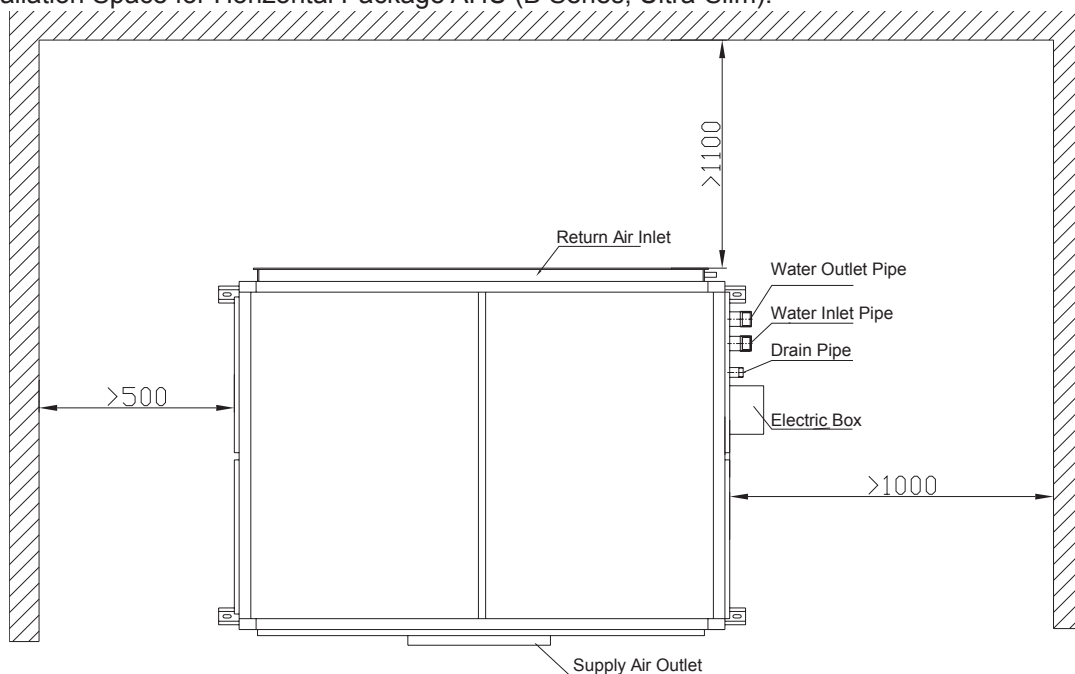
2.1.2 Outline Dimensions and Installation Dimensions of Horizontal Package AHU



Model	A	B	H	C	D	E	F	G	M	N	O	P	Q	X	Y	Z	W
G-1.5WD(X)/B	830	1000	440	220	100	260	420	—	310	860	99	50	280	132	90	152	DN40
G-1.5WD(X)I/B	830	1000	440	220	100	260	420	—	310	860	165	50	280	217	71	105	DN40
G-2WD(X)/B	930	1300	460	260	90	300	500	—	330	1160	99	50	330	132	90	152	DN40
G-2WD(X)I/B	930	1300	460	260	90	300	500	—	330	1160	165	50	330	217	75	110	DN40
G-2.5WD(X)/B	930	1300	460	260	90	300	500	—	330	1160	99	50	330	132	90	152	DN40
G-2.5WD(X)I/B	930	1300	460	260	90	300	500	—	330	1160	165	50	330	217	75	110	DN40
G-3WD(X)/B	930	1500	460	220	100	680	510	160	330	1360	99	50	330	132	90	152	DN40
G-3WD(X)I/B	930	1500	460	220	100	680	510	160	330	1360	165	50	330	217	75	110	DN40
G-4WD(X)/B	930	1900	460	260	90	800	550	200	330	1760	99	50	330	132	90	152	DN40
G-4WD(X)I/B	930	1900	460	260	90	800	550	200	330	1760	165	50	330	217	75	110	DN40
G-5WD(X)/B	1130	2000	560	300	105	960	520	240	430	1860	99	50	435	260	90	136	DN50
G-5WD(X)I/B	1130	2000	560	300	105	960	520	240	430	1860	165	50	435	328	92	131	DN50
G-6WD(X)/B	1130	2000	560	300	105	960	520	240	430	1860	99	50	435	260	90	136	DN50
G-6WD(X)I/B	1130	2000	560	300	105	960	520	240	430	1860	165	50	435	328	92	131	DN50
G-7WD(X)/B	1130	2200	560	300	105	960	620	240	430	2060	99	50	435	260	90	136	DN50
G-7WD(X)I/B	1130	2200	560	300	105	960	620	240	430	2060	165	50	435	328	92	131	DN50
G-8WD(X)/B	1130	2200	660	360	110	1140	530	300	520	2060	99	50	435	284	98	147	DN50
G-8WD(X)I/B	1130	2200	660	360	110	1140	530	300	520	2060	165	50	435	366	102	131	DN50

2.2 Installation Space

1) Installation Space for Horizontal Package AHU (B Series, Ultra-Slim).



2.3 Installation Precautions

2.3.1 Installation Requirements

Based on the expected cooling (heating) capacity, noise level, all sorts of parameters, this product should be installed in such a way that the duct design, duct insulation and noise attenuation measures comply with the industrial standards and satisfy the user's demands.

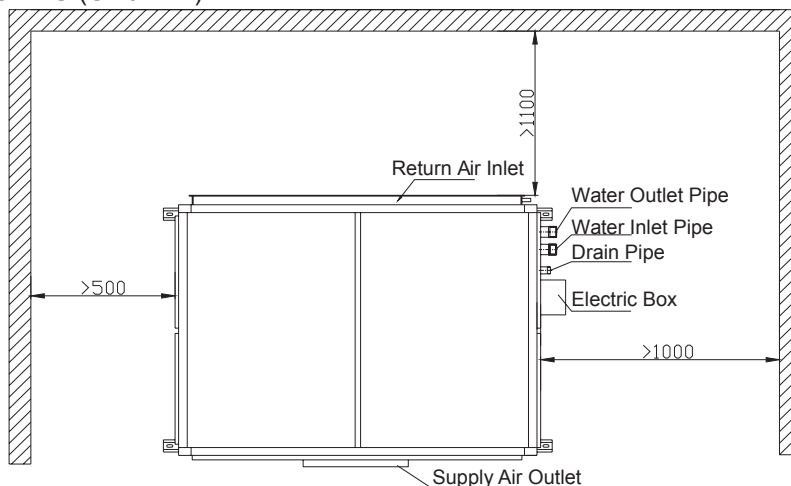
In order to obtain the easy access to the unit for service and normal operation, it is required to observe the requirements stated below:

- 1) The unit must be installed horizontally, allowing the maximum right-left/back-front height difference of 5mm and maximum gradient of 1:500
- 2) Enough space must be left around the unit for future service and for the installation of the return air

duct.

- 3) Enough space must be left around the unit for the access door and for servicing the filter.
- 4) Enough space must be left around the unit for the installation of the water inlet/outlet pipe.
- 5) Enough space must be left around the unit for servicing the belt wheel, motor, coil and etc.
- 6) Do not place the unit where there is inflammable, explosive and corrosive gas, oil smog, and salt mist.
- 7) Be sure that the hoisting system is capable of withstanding the weight of the unit.
- 8) Be sure that the installation surface, installation hanger is capable of the withstanding the weight of the unit. Additionally, the installation hanger should be furnished with the spring damper and rubber pad to prevent vibration from spreading to the installation surface.

Horizontal Package AHU (Unit: mm)



- 9) The joint between the unit and the duct should be sealed properly to avoid air leakage.

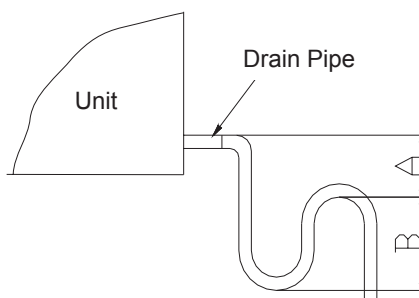
2.3.2 Piping

- 1) The design and installation of the pipeline shall comply with related national standard.
- 2) The water inlet/outlet pipe and drain pipe are all standard parts and are all used with the male connector.
- 3) The water inlet/outlet pipe should be installed with a flexible connector as well as a properly sized filter.
- 4) The water inlet/outlet pipe shall be furnished with external valves to control the water flow or cut off the water flow during service.
- 5) During installation, the connector can not be tightened excessively to prevent it being damaged.
- 6) When there are two or more inlet/outlet pipes, they should be connected in parallel.
- 7) The weight of the water pipe can not be withstood by the unit
- 8) The inlet/outlet water pipe and the drain pipe should be insulated properly.
- 9) The drain pipe shall be furnished with the trap.
- 10) The drain pipe should be installed with a downward gradient so as to facilitate drainage of condensate.

$$A = B \geq (P/10) + 20 \text{ (unit: mm)}$$

P---operating pressure of this section (unit: Pa)

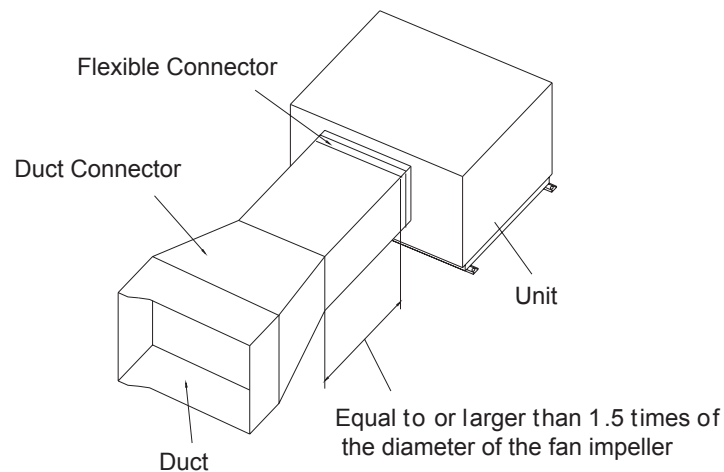
Installation of the Drain Pipe



Installation of the Drain Pipe

7.3.3 Installation of the Duct

- 1) The design and installation of the duct shall comply with relevant national standards.
- 2) The duct should be designed in the way that its sectional area won't vary suddenly and the air flow won't shift direction at the outlet of the fan.
- 3) During the installation of the duct, the fresh air duct shall be equipped with a seal valve.
- 4) When it is required to mix the return air and the fresh air, if the air flow rate is too low, connect the fresh air duct directly to the return air duct; if the air flow rate is too high, connect the fresh air duct and return air duct to the return air plenum box.
- 5) The duct should be connected to the air inlet/outlet through the flexible connector. Besides, the weight of the duct can not be withstood by the unit.
- 6) Measures should be taken to reduce noise for the return air duct and supply air duct (like, installing the noise attenuation trap or box).
- 7) Both the supply air duct and the return air duct shall be insulated properly.



WARNING:

Do not operate the unit when the duct is not attached properly and do not remove the duct when the unit is operating.

2.3.4 Electric Wiring

- 1) The power supply should be 380V, 3-Phase, 50Hz.
- 2) Electric wiring should be performed in accordance with the wiring diagram (stuck to the inside of the electric box). The control cabinet should be prepared by the user.
- 3) The unit shall be grounded reliably.
- 4) The fan motor should be powered by the power supply system with overload protection. When the power of the motor exceeds 15kW, it shall be started with step-down voltage.
- 5) Before startup, the electric test should be performed to verify if the electric wiring meets the safety requirement.

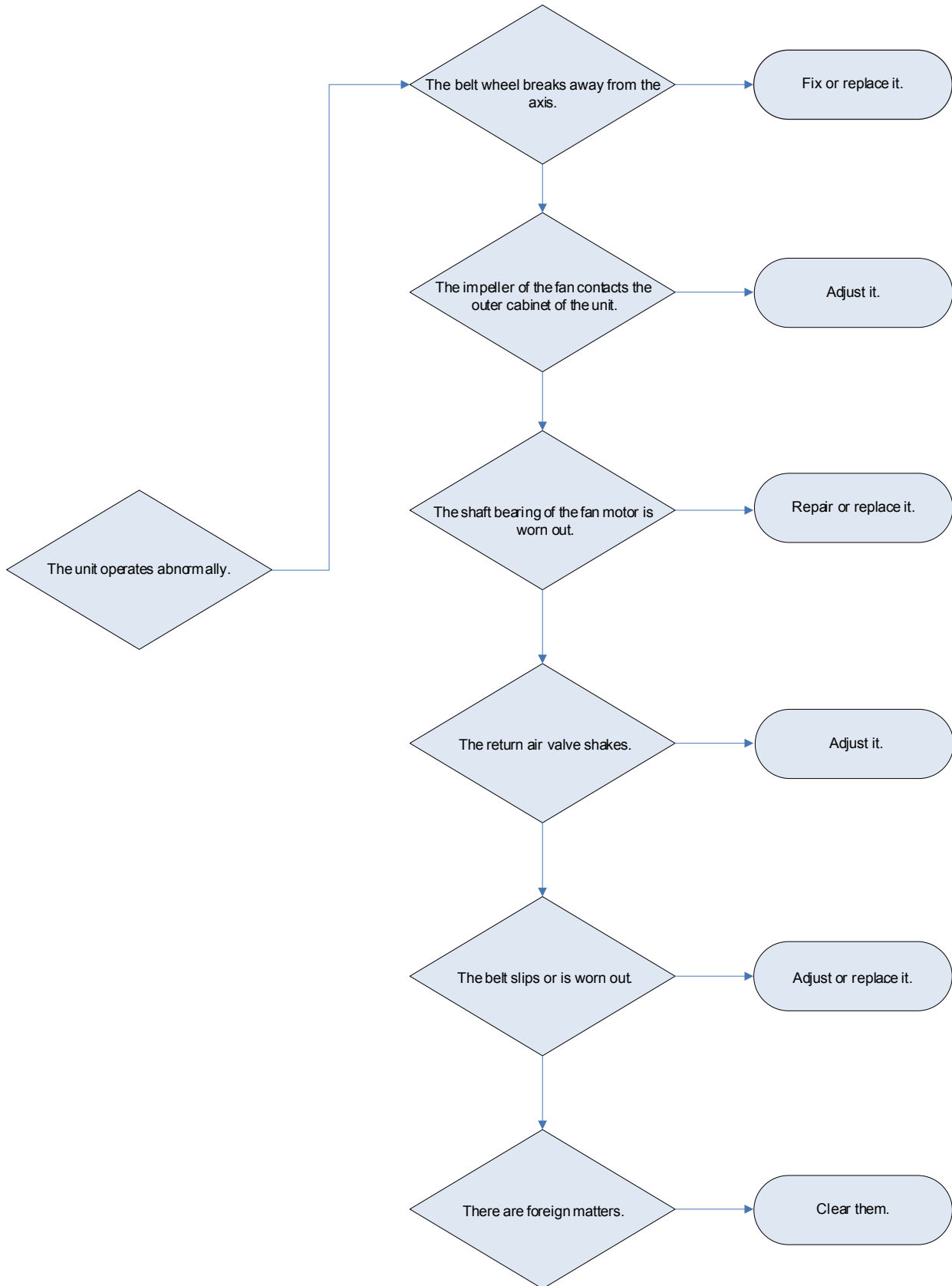
MAINTENANCE

MAINTENANCE

1. Error List for ZG Series Package AHU

No.	Symptoms	Causes	Remedies
1	Air Leakage	The panel is sealed poorly. There is gap between metal sheets. Deformation occurs because of improper installation.	Seal the panel again. Seal the gap. Rearrange the installation location.
2	Water Leakage	The air flow rate is too high. No drain pipe is installed. The base plate under the drain pan is poorly insulated.	Adjust the air flow rate. Install the drain pipe. Install the insulating material.
3	Sweating	The metal sheet is poorly insulated. The panel is poorly insulated or sealed.	Install the insulating material. Install the insulating or sealing material.
4	Poor Drainage	The middle part of the drain pan sinks down. The drain pipe is furnished with no or improper water trap.	Adjust it. Install or adjust the water trap.
5	Abnormal Operation	The belt wheel breaks away from the axis. The belt slips. The shaft bearing of the fan motor is worn out. The fan impeller contacts the outer casing of the unit. The return air valve shakes There are foreign matters.	Fix or replace it. Adjust or replace it. Repair or replace it. Adjust it. Adjust it. Clear them.
6	High Air Flow Rate	Resistance to the air flow is too small. (The duct is too short.) The motor rotates fast.	Adjust the air flow rate. Redesign and replace it.
7	Low Air Flow Rate	The belt comes loose or cracks. The coil or filter is too dirty. Resistance to the air flow is too large. (The duct is too long.) The belt wheel or the axis comes loose. The motor rotates slowly.	Adjust or replace it. Clean or replace it. Adjust the air flow rate. Replace it. Redesign and replace it.
8	Worn Belt	The belt comes loose. Too belt wheels are unbalanced. The surface of the wheel groove is too rough.	Adjust or replace it. Adjust or calibrate it. Replace it.
9	Burnt Motor	The motor is overloaded. The motor is powered with improper voltage. The motor is poorly insulated.	Adjust the air flow rate and replace the motor. Replace the motor. Replace the motor.

2. Troubleshooting for ZG Series Package AHU



3. Electricity Distribution



3.1 Main Electric Parts

Thermal Relay

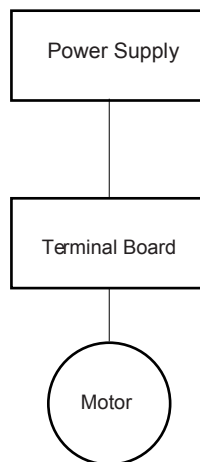
Action Conditions: the motor is over-current, or 3-phase current is unbalanced, or there is phase loss.

Action Result: The fan stops running.

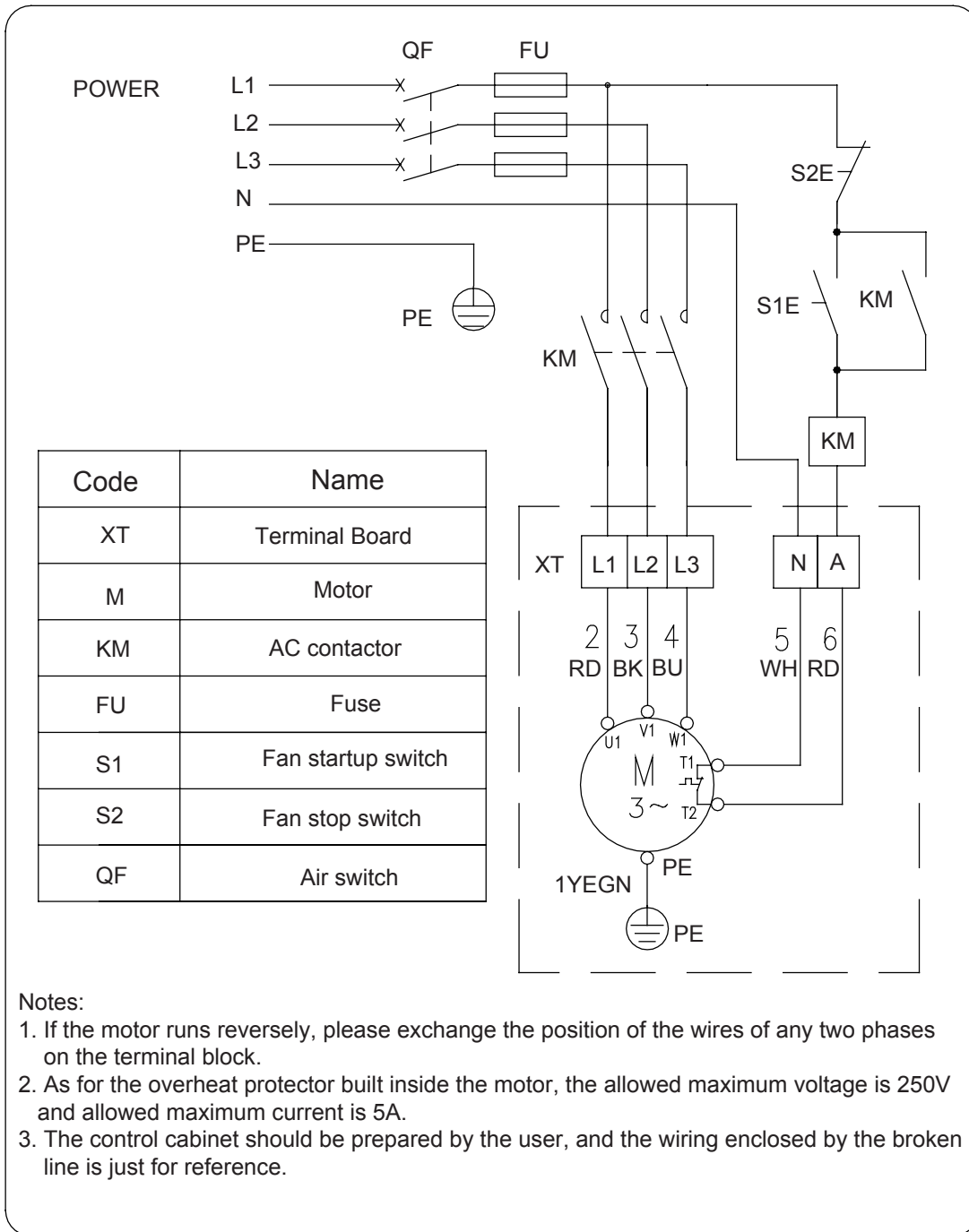
Remedy: Check if the voltage and motor winding is in good condition. If so, press the “Reset” button and restart the unit, and meanwhile check if the operating current of the compressor is normal.

Name	Appearance	Function
Thermal Relay		<p>It is used to detect the current which is to go through the load. When the current is larger than the limit of the relay, its normal-open contact will be closed, and the normal-closed contact will be opened.</p>
AC Contactor		<p>It is used to start the motor when its contact gets the output voltage from the main board and picks up.</p>

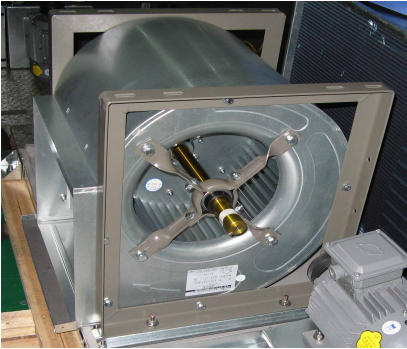


3.2 Electricity Distribution Chart



3.3 Wiring Diagram



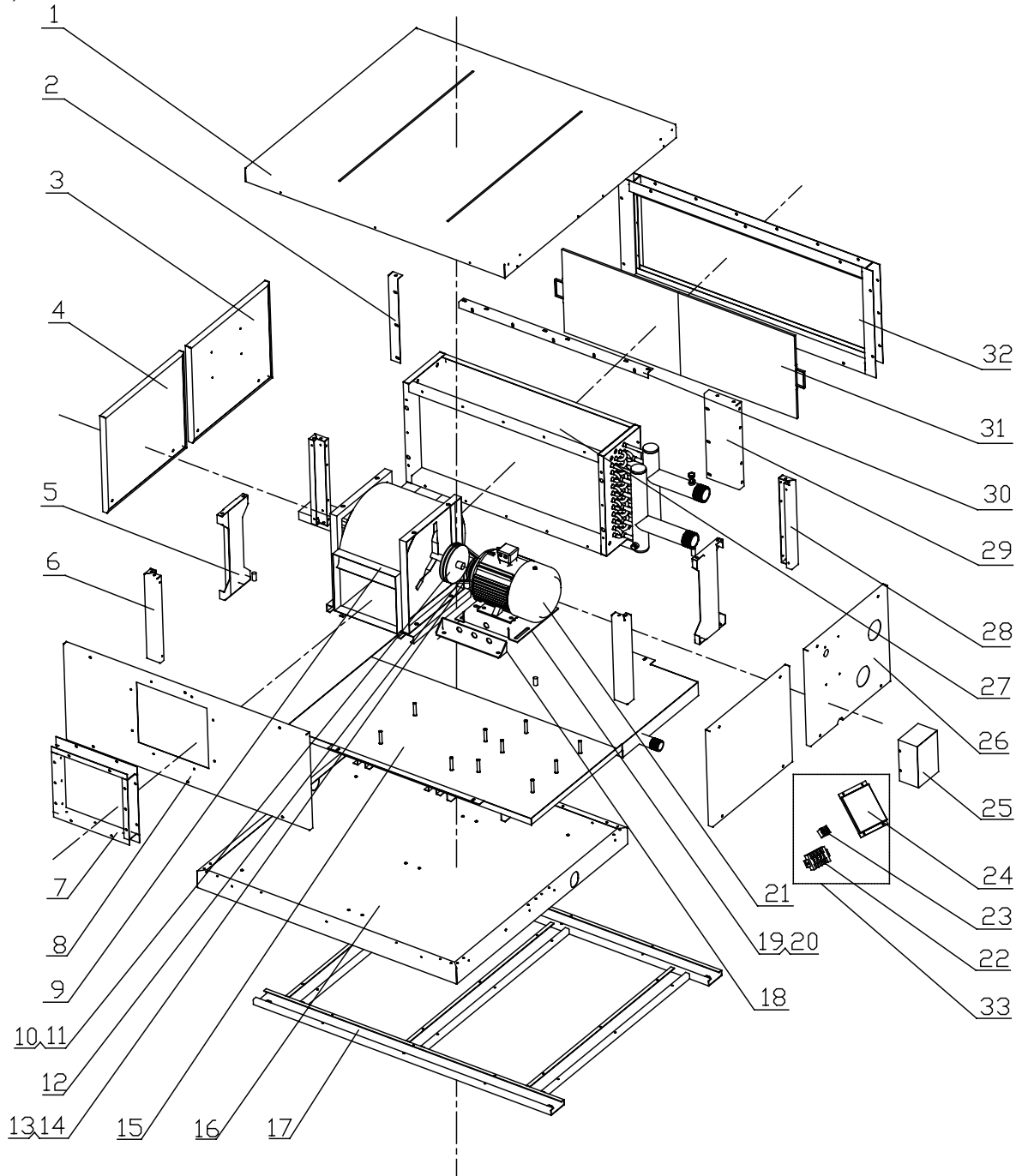
4. Functions of Main Parts

Appearance	Name	Function
	Centrifugal Fan	Able to create a current of air flow.
	Motor	Able to rotate the fan impeller.
	Heat Exchanger	Able to transfer heat between water and air.

5. Explosive Views and Parts List

B Series Horizontal Package AHU

1) G-1.5WD/B-M~G-4WD/B-M



G-1.5WD/B-M(EM50900110)

NO.	Name	Code	Quantity
1	Top Panel Sub Assy	01539408	1
2	Right Air Guard	01356238P	1
3	Side Panel Sub Assy of B	01539417	1
4	Side Panel Sub Assy of A	01539414	2
5	Middle Column	01856109P	2
6	Front Column Sub Assy	01729294	2
7	Air Outlet Flange Sub Assy	01499301	1
8	Air Outlet Panel Sub Assy	01539411	1
9	Fan Motor	15019230	1
10	Belt Wheel	10548130	1
11	Taper Sleeve	10548204	1
12	Belt	76318349	1
13	Belt Wheel	10548132	1
14	Taper Sleeve	10548203	1
15	Water Tray Assy	01279252	1
16	Seat board Sub Assy	01539405	1
17	Suspend rack sub Assy	01729292	1
18	Motor Block Assy	01239231	1
19	Supporter	01726301	2
20	Motor Mounting Plate	01339248	1
21	Motor	15018308	1
22	Terminal Block	/	/
23	Terminal Block	42011221	1
24	Electric Component Mounting Plate	01326174	2
25	Cover of Electric Box	01426070	1
26	Side Panel with Hole Sub Assy	01646111	1
27	Surface Cooler Assy	01126146	1
28	Back Column Sub Assy	01729297	2
29	Left Air Guard	01356231P	1
30	Top Air Guard	01356244	1
31	Filter Sub Assy	11726015	2
32	Air Inlet Flange Sub Assy	01499296	1
33	Electric Box Assy	01396043	1

G-2WD/B-M(EM50900070)(EM50900071)(EM50900072)

NO.	Name	Code	Quantity
1	Top Panel Sub Assy	01539433	1
2	Right Air Guard	01356242	1
3	Side Panel Sub Assy of B	01539442	1
4	Side Panel Sub Assy of A	01539439	2
5	Middle Column	0185610901P	2
6	Front Column Sub Assy	01729305	2
7	Air Outlet Flange Sub Assy	01499312	1
8	Air Outlet Panel Sub Assy	01539436	1
9	Fan Motor	01709245	1
10	Belt Wheel	10548137	1
11	Taper Sleeve	10548207	1
12	Belt	76318360	1
13	Belt Wheel	10548135	1
14	Taper Sleeve	10646001	1
15	Water Tray Assy	01279261	1
16	Seat board Sub Assy	01539430	1
17	Suspend rack sub Assy	01729303	1
18	Motor Block Assy	01239231	1
19	Supporter	01726303	2
20	Motor Mounting Plate	01339248	1
21	Motor	15018307	1
22	Terminal Block		/
23	Terminal Block	42011221	1
24	Electric Component Mounting Plate	01326174	2
25	Cover of Electric Box	01426070	1
26	Side Panel with Hole Sub Assy	01646122	1
27	Surface Cooler Assy	01126146	1
28	Back Column Sub Assy	01729308	2
29	Left Air Guard	01356241P	1
30	Top Air Guard	01356243	1
31	Filter Sub Assy	1172601501	2
32	Air Inlet Flange Sub Assy	01499307	1
33	Electric Box Assy	01396043	1

G-2.5WD/B-M(EM50900100)

NO.	Name	Code	Quantity
1	Top Panel Sub Assy	01539460	1
2	Right Air Guard	01356242P	1
3	Side Panel Sub Assy of B	01539442	1
4	Side Panel Sub Assy of A	01539439	2
5	Middle Column	0185610901P	2
6	Front Column Sub Assy	01729305	2
7	Air Outlet Flange Sub Assy	01499320	1
8	Air Outlet Panel Sub Assy	01539463	1
9	Fan Motor	15019240	1
10	Belt Wheel	10548135	2
11	Taper Sleeve	10548207	1
12	Belt	76318360	1
13	Belt Wheel	/	1
14	Taper Sleeve	10646001	1
15	Water Tray Assy	01279268	1
16	Seat board Sub Assy	01539457	1
17	Suspend rack sub Assy	01729318	1
18	Motor Block Assy	01239231	1
19	Supporter	01726303	2
20	Motor Mounting Plate	01339248	1
21	Motor	15018307	1
22	Terminal Block	/	/
23	Terminal Block	42011221	1
24	Electric Component Mounting Plate	01326174	2
25	Cover of Electric Box	01426070P	1
26	Side Panel with Hole Sub Assy	01646122	1
27	Surface Cooler Assy	01126150	1
28	Back Column Sub Assy	01729308	2
29	Left Air Guard	01356241P	1
30	Top Air Guard	01369281	1
31	Filter Sub Assy	1172601502	2
32	Air Inlet Flange Sub Assy	01499316	1
33	Electric Box Assy	01396043	1

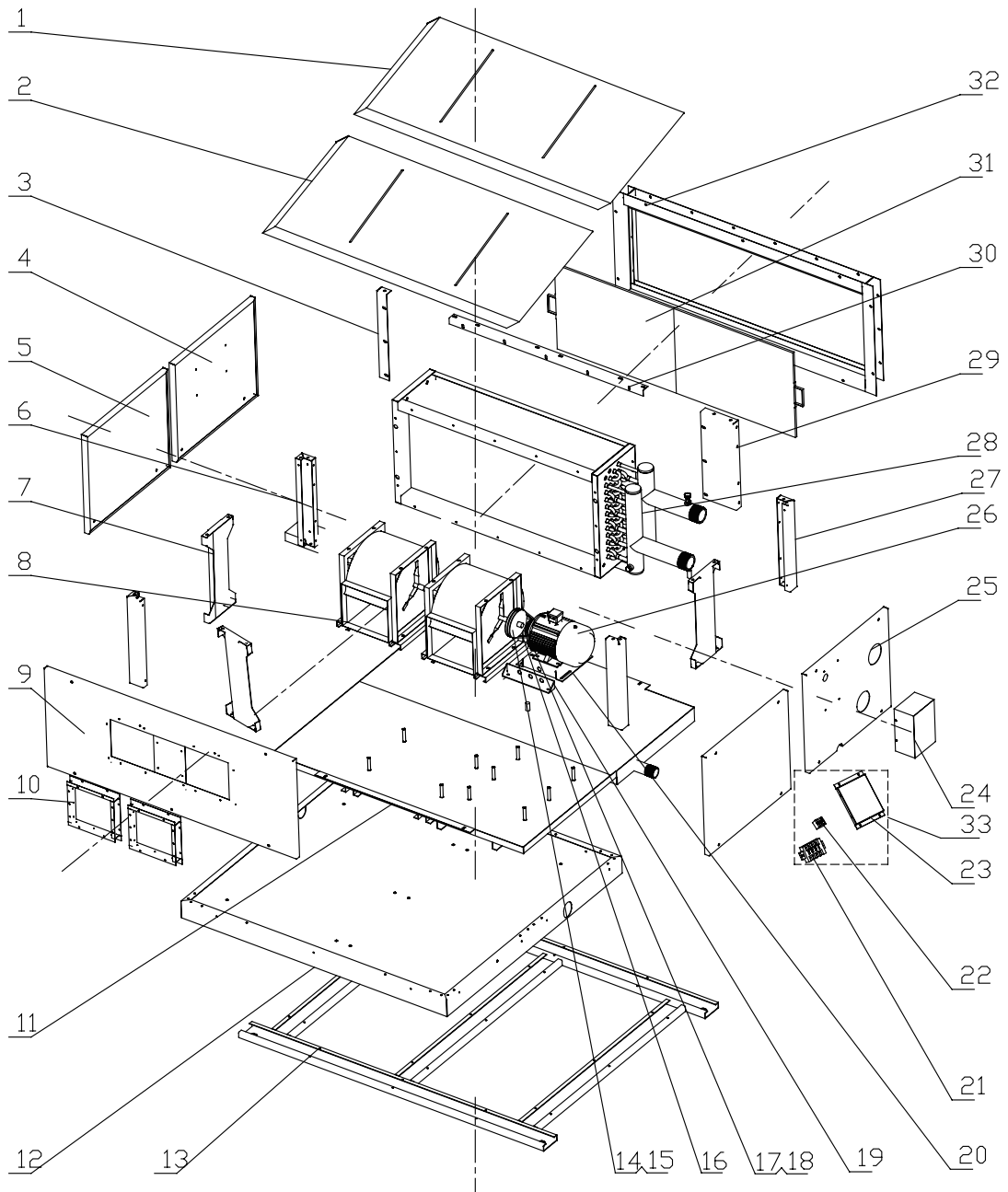
G-3WD/B-M (EM50900090)(EM50900091)(EM50900092)

NO.	Name	Code	Quantity
1	Top Panel Sub Assy	01536312	1
2	Right Air Guard	01356242P	1
3	Side Panel Sub Assy of B	01539442	1
4	Side Panel Sub Assy of A	01539439	2
5	Middle Column	0185610901P	2
6	Front Column Sub Assy	01729305	2
7	Air Outlet Flange Sub Assy	01499248	1
8	Air Outlet Panel Sub Assy	01536313	1
9	Fan Motor	15019231	1
10	Belt Wheel	10548152	2
11	Taper Sleeve	10548211	1
12	Belt	76318352	1
13	Belt Wheel	10548150	1
14	Taper Sleeve	10548210	1
15	Water Tray Assy	01279275	1
16	Seat board Sub Assy	01536309	1
17	Suspend rack sub Assy	01729237	1
18	Motor Block Assy	02139231	1
19	Supporter	01726301	4
20	Motor Mounting Plate	01339235	1
21	Motor	15018303	1
22	Terminal Block	/	/
23	Terminal Block	42011221	1
24	Electric Component Mounting Plate	01326174	2
25	Cover of Electric Box	01426070P	1
26	Side Panel with Hole Sub Assy	01646122	1
27	Surface Cooler Assy	01126149	1
28	Back Column Sub Assy	01729308	2
29	Left Air Guard	01356241P	1
30	Top Air Guard	01369289	1
31	Filter Sub Assy	1172601503	2
32	Air Inlet Flange Sub Assy	01499243	1
33	Electric Box Assy	01396043	1

G-4WD/B-M(EM50900081)(EM50900080)

NO.	Name	Code	Quantity
1	Top Panel Sub Assy	01536322	1
2	Right Air Guard	01356242P	1
3	Side Panel Sub Assy of B	01539442	1
4	Side Panel Sub Assy of A	01539439	2
5	Middle Column	0185610901P	2
6	Front Column Sub Assy	01729305	2
7	Air Outlet Flange Sub Assy	01499348	1
8	Air Outlet Panel Sub Assy	01536330	1
9	Fan Motor	15219239	1
10	Belt Wheel	10548154	1
11	Taper Sleeve	10548211	1
12	Belt	76318306	1
13	Belt Wheel	10548152	1
14	Taper Sleeve	10548210	1
15	Water Tray Assy	01279276	1
16	Seat board Sub Assy	01536314	1
17	Suspend rack sub Assy	01729329	1
18	Motor Block Assy	02139231	1
19	Supporter	01726303	4
20	Motor Mounting Plate	01339235	1
21	Motor	15018303	1
22	Terminal Block		/
23	Terminal Block	42011221	1
24	Electric Component Mounting Plate	01326174	2
25	Cover of Electric Box	01426070P	1
26	Side Panel with Hole Sub Assy	01646122	1
27	Surface Cooler Assy	01126148	1
28	Back Column Sub Assy	01729308	2
29	Left Air Guard	01729308	1
30	Top Air Guard	01369295	1
31	Filter Sub Assy	1172601504	2
32	Air Inlet Flange Sub Assy	01499344	1
33	Electric Box Assy	01396043	1

2) G-6WD/B-M~G-8WD/B-M



G-6WD/B-M(EM50900130)


NO.	Name	Code	Quantity
1	Top Panel A	'01536352	1
2	Top Panel B	'01536354	1
3	Right Air Guard	/	
4	Side Panel Sub Assy of B	01536339	1
5	Side Panel Sub Assy of A	'01536336	1
6	Front Column Sub Assy	'01729333	2
7	Middle Column	'0185610902P	1
8	Fan Motor	'15219240	1
9	Air Outlet Panel Sub Assy	'01536345	1
10	Air Outlet Flange Sub Assy	'01499363	1
11	Water Tray Assy	'01279284	1
12	Seat board Sub Assy	'01539262	1
13	Suspend rack sub Assy	'01729284	1
14	Belt Wheel	'10548156	1
15	Taper Sleeve	'10548218	1
16	Belt	'76318320	1
17	Belt Wheel	'10548150	1
18	Taper Sleeve	'10548211	1
19	Motor Block Assy	'02119250	1
20	Motor Mounting Plate	'01339330	1
21	Terminal Block	'42011221	1
22	Terminal Block	/	
23	Electric Component Mounting Plate	'01326174	1
24	Cover of Electric Box	01426070	1
25	Side Panel with Hole Sub Assy	'01646115	1
26	Motor	'15018303	1
27	Back Column Sub Assy	'01729336	2
28	Surface Cooler Assy	'01126152	1
29	Left Air Guard	/	
30	Top Air Guard	/	
31	Filter Sub Assy	'1172601506	2
32	Air Inlet Flange Sub Assy	'01499294	1
33	Electric Box Assy	'01396043	1

G-7WD/B-M(EM50900140)

NO.	Name	Code	Quantity
1	Top Panel A	'01536326	1
2	Top Panel B	'01536328	1
3	Right Air Guard	/	
4	Side Panel Sub Assy of B	'01536339	1
5	Side Panel Sub Assy of A	'01536336	1
6	Front Column Sub Assy	'01729333	2
7	Middle Column	'0185610902	1
8	Fan Motor	'15219240	1
9	Air Outlet Panel Sub Assy	'01536333	1
10	Air Outlet Flange Sub Assy	'01499357	1
11	Water Tray Assy	'01279280	1
12	Seat board Sub Assy	'01536317	1
13	Suspend rack sub Assy	'01729331	1
14	Belt Wheel	'10548155	1
15	Taper Sleeve	'10548218	1
16	Belt	'76318341	1
17	Belt Wheel	'10548150	1
18	Taper Sleeve	'10548213	1
19	Motor Block Assy	'02139234	1
20	Motor Mounting Plate	'01339257	1
21	Terminal Block	'42011221	1
22	Terminal Block	/	
23	Electric Component Mounting Plate	'01326174	1
24	Cover of Electric Box	'01426070	1
25	Side Panel with Hole Sub Assy	'01646115	1
26	Motor	'15014805	1
27	Back Column Sub Assy	'01729336	2
28	Surface Cooler Assy	'01126153	1
29	Left Air Guard	/	
30	Top Air Guard	/	
31	Filter Sub Assy	'1172601507	2
32	Air Inlet Flange Sub Assy	'01499352	1
33	Electric Box Assy	'01396043	1

G-8WD/B-M(EM50900150)

NO.	Name	Code	Quantity
1	Top Panel A	'01536326	1
2	Top Panel B	'01536328	1
3	Right Air Guard	/	/
4	Side Panel Sub Assy of B	'01536348	1
5	Side Panel Sub Assy of A	'01536347	1
6	Front Column Sub Assy	'01729239	2
7	Middle Column	'0185610903P	3
8	Fan Motor	'15018320	1
9	Air Outlet Panel Sub Assy	'01536346	1
10	Air Outlet Flange Sub Assy	'01499261	1
11	Water Tray Assy	'01279286	1
12	Seat board Sub Assy	'01536317	1
13	Suspend rack sub Assy	'01729331	1
14	Belt Wheel	'10548154	1
15	Taper Sleeve	'10548209	1
16	Belt	'76318341	1
17	Belt Wheel	'10549233	1
18	Taper Sleeve	'10548214	1
19	Motor Block Assy	'02139234	1
20	Motor Mounting Plate	'01339257	1
21	Terminal Block	'42011221	1
22	Terminal Block	/	/
23	Electric Component Mounting Plate	'01326174	1
24	Cover of Electric Box	'01426070	1
25	Side Panel with Hole Sub Assy	'01646116	1
26	Motor	'15018611	1
27	Back Column Sub Assy	'01729240	2
28	Surface Cooler Assy	'01126153	1
29	Left Air Guard	'01356233	1
30	Top Air Guard	'01356261	1
31	Filter Sub Assy	'1172601508	2
32	Air Inlet Flange Sub Assy	'01499256	1
33	Electric Box Assy	'01396043	1



JF00301427

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