

## DIRECT EXPANSION AIR HANDLING UNIT



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## 1PRODUCT OVERVIEW

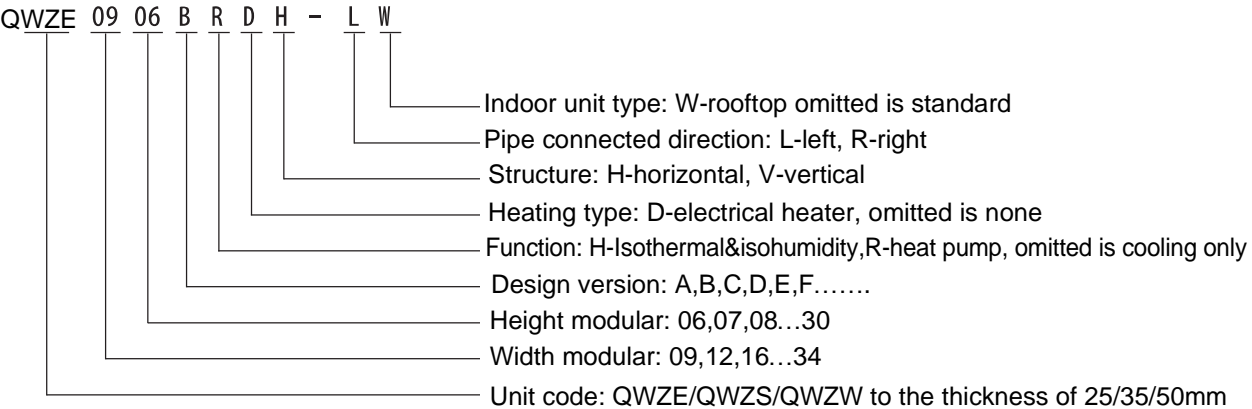
Air cooled DX air handling unit is a kind of unit with cooling/heating source itself, it includes air cooled compression part and air handling part. Through cooling system , control system and kinds of air handling sections to finish the cooling, heating, dehumidification, humidification, air purification, supply fresh air and so on. No need cooling tower, chilled(cold)water system , water pump or special room. Compared to water system design, it is easy, convenient, and lower cost.

Water cooled DX air handling unit is combined by air handling unit and cold(electrical heat) source. For this system, it has high EER, low noise, it is widely used in southern part of China where has lower requirement of heating. Our DX unit has water cooled and air cooled two kinds, the air flow is from 2500m3/h~180000m3/h, cooling capacity is from 12kw~700kw, ESP from 25Pa~1800pa, we have many kinds of products for your choice.

The unit can be installed on rooftop and outside the room, it is widely used for gymnasium, convention center, hotel, meeting room, mall, and waiting room where required comfortable air condition. It is also widely use in pharmaceutical, electrical factory, food factory where have strict requirements for the temperature and humidity.

## 2MODEL INSTRUCTION

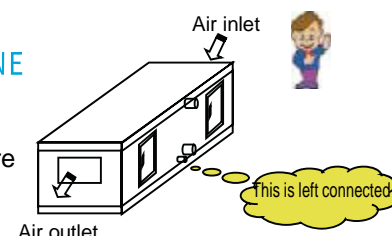
### 1INDOOR MACHINE



## 2 MODEL SPECIFICATION

### 2 LEFT AND RIGHT JUDGMENT OF INDOOR MACHINE

Face to the air inlet side(coil windward side), pipe and door are on left is left connected, on right is right connected.



### 3 OUTDOOR UNIT

QWCA 1067 A R 2 X - B AA

- Details
- Power
- Unit different code
- Refrigerant (2-R407c)
- Function: R-heat pump, omitted is cooling chiller
- Design version
- Unit No.
- Air cooled screw type outdoor unit



QWSA 250 B R 2 X - B AA

- Details
- Power
- Unit different code
- Refrigerant (2-R407c)
- Function: R-heat pump, omitted is cooling chiller
- Design version
- Unit No.
- Air cooled scroll type outdoor unit



QWCW 1012 A 2 X - B AA

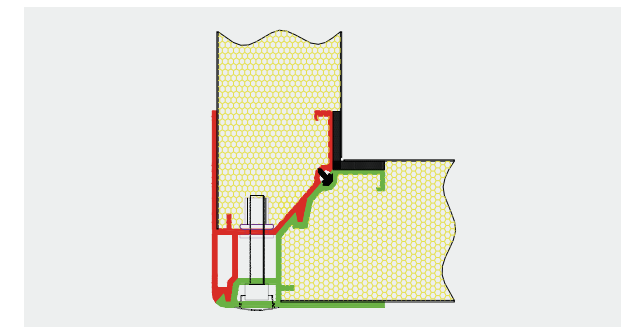
- Details
- Power
- Unit different code
- Refrigerant (2-R407c)
- Design version
- Unit No.
- Water cooled condensing section



## 3 PRODUCT FEATURES

### 1 PATENT STRUCTURE

Air handling unit part applied double framing structure with low air leakage rate at 0.1%. unit assembly applies direct structure assemble, and the internal of the panel comprise of high density of injected rigid polyurethane foam that ensure the strength of the unit.

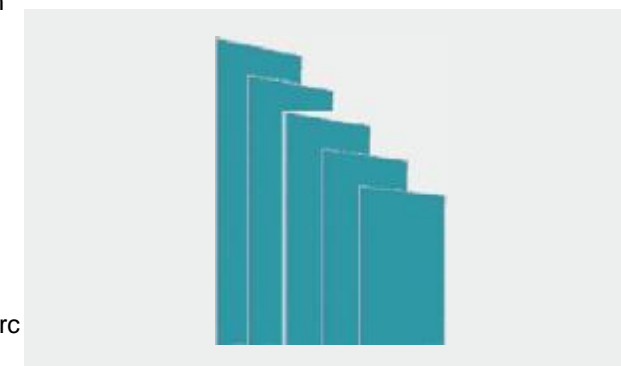


### 2 MODULAR DESIGN

Unit uses modular and digital design, 100mm for each module and adds at a rate in order to meet width and height requirement of on-site situation.

### 3 THE INNER IS SMOOTH AND SUITABLE FOR PURIFICATION

A good smooth surface of the unit makes dust collection hard and not easy to be polluted. Thus it is suitable for clean room application.



### 4 BEAUTIFUL APPEARANCE, SMOOTH MODELING

Unit panel uses high strength anticorrosion color steel. Covered with a protection plastic layer to prevent any scratches during assemble and transportation.

After the panel is constructed, the corner becomes an arc structure thus providing an aesthetic outlook.

### 5

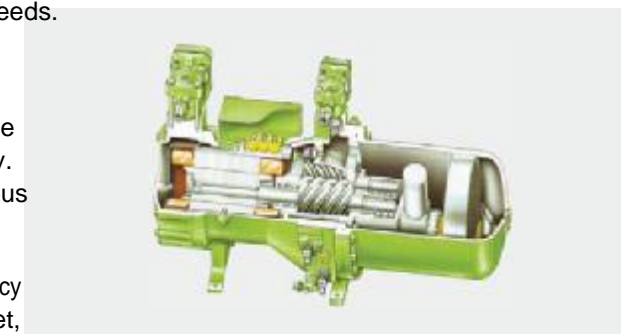
SITE DISASSEMBLY AND ASSEMBLY, CONVENIENT AND QUICK

All the boxes can be took apart and installed on site, even if it was assembled for several times, it will not influence the sealing and strength of the boxes, the indoor unit could realize the whole machine or bulk transportation according to customer needs.

### 6 EXCELLENT QUALITY

High efficiency screw compressor, advanced tooth profile design, high precision machining, high volume efficiency. Worldwide famous brand motor, it can be stable at various working condition.

Efficient hermetical scroll compressor has high volume efficiency and EER, low noise, little shock, impact resistance of wet, stable quality, superior performance.



Water cooled shell and tube type condenser applies high efficient heat exchanger tube, compact structure, small pressure drop, high heat transfer coefficient. There is subcooler under the bottom, it can efficiently improve the liquid subcooling degree. The condenser is strictly designed, manufactured and test according to the GB151-2014 "HEAT EXCHANGER" and NB/T47012-2010 "pressure container for condensing device".



Airside heat exchanger applies inner thread copper tube and aluminum fins through mechanical expansion to combination, the total heat transfer coefficient is 30% higher than the normal ones. Aluminum fins has Hydrophilic and antiseptic treatment, lower the condenser water film thickness, low the resistance, improving the coil heat transfer efficiency;



Adopt the automatic control component of refrigerant system from ALCO, DANFOSS and other worldwide famous brands, so the performance is reliable.

By using the high quality and efficient double inlet centrifugal fan and special shockproof structure, the unit has smaller vibration and lower noise.

## 7 RUNNING QUIET

The inside of the air handling broken carton board uses the high density polyurethane foam(density 50kgs/m<sup>3</sup>) baffles the noise of air supply system effectively;

Adopts the latest and high quality totally hermetical scroll /semi-hermetical screw compressor, operate smoothly and reliably, with lower noise and small vibration.

By using the ultra-quiet axial flow fan which conforms to the aerodynamic principle, the units run quietly.



## 8 ADVANCED CONTROL

### Microcomputer Controller

4.3 feet colorful display panel, high resolution, capacitive touch, easy to operate.

Date, week, time all can display, support timing on/off.

Fault, operation status displays in text, easy to read and understand.

Reserved Modbus 485 contact, can achieve remote control except the all fresh air unit

### PLC Controller A type

Screw unit and Isothermal & isohumidity unit applies SIEMENS microcomputer controller, high reliability, strong anti-interference, it can work under -25~55°C environment.

Press buttons are all sealed touch button, waterproof, dampproof (PANEL LEVEL is IP65), the display interface is easy to read and operate.

It has automatically defrosting and manual defrosting function, fault automatic diagnosis and protection.

The controller has two standard RS-485 connector(optional), one is to display panel, the panel can put in room which is 800 meter away, and the other is to external internet, achieve distributed control(800meters) to BAS system, for remote monitor control.

### PLC Controller B type

Isothermal and Isohumidity series unit applies CAREL microcomputer controller, B type PLC controller is European famous brand controller and 4 lines text display, except the A type PLC controller alarming functions( alarming function has compressor high pressure, low pressure, overheat, overload, air pressure difference, fan overload, filter blocked, humidity or temperature to high and too low and so on), it also has optional choice like fire proof, smoke detector, water leakage and so on. It can interlock with the building safety switch, for the device operating safely.

Can choose support MODBUS connector to the building control system(BMS)

Can choose support BAC net TM connector to building control system(BMS).

Can choose RS232 communication card, connect GSM modem, achieve GSM telephone send and receive SMS message, or connect to 1 set serial printer.

## 9 PROFESSIONAL SELECTION SOFTWARE

Professional DX air handling unit selection software

Make sure the parts list and calculate the price automatically.

Interface easy to operate.



## 4 AIR COOLED DX TYPE PARAMETERS(R407C)

Model	Indoor unit	QWZE	0909	1209	1409	1511	1512	1812	
		QWZS							
		QWZW							
	Outdoor unit	Model	QWSA100B(R)2X	QWSA125B(R)2X	QWSA150B(R)2X	QWSA200B(R)2X	QWSA250B(R)2X	QWSA150B(R)2M	
Qty	1	1	1	1	1	1	2		
Rated cooling capacity		kW	25.2	28.5	35	47.5	59	70	
Rated heating capacity		kW	26.6	32.3	39	53.2	64.6	78	
Power		—	380V/3N~,50Hz						
Indoor unit	Air flow	m <sup>3</sup> /h	5000	6500	7500	10000	12000	15000	
	Temperature control	—	Cooling: 22-26°C,Heating:18-22°C						
	Size	Width	m m	950	1250	1450	1550	1550	1850
		Height	m m	1030	1030	1030	1230	1330	1330
		Length	m m	Depends on the functional section					
Compressor*qty		—	Scroll type*2						
Outdoor unit	Cooling power input		kW	8.7	10.5	11.9	18.1	20.4	11.9
	Heating power input		kW	8	10.3	11.6	17	19.2	11.6
	Weight		kg	240	260	325	492	544	325
	Size	Length	m m	1403	1558	1558	1808	1808	1558
		Width	m m	821	882	882	1090	1090	882
		Height	m m	980	1170	1170	1190	1190	1170
	Refrigerant	Type	—	R407C					
Charge		kg	4.5*2	5.1*2	6.2*2	8.0*2	9.5*2	6.2*4	
Pipe	Connection	—	Indoor unit welding/outdoor unit flared joint			Welding			
	Liquid	Øm m	12.7*2	12.7*2	12.7*2	15.88*2	15.88*2	12.7*4	
	Steam	Øm m	19.05	19.05*2	22.22*2	28.6*2	28.6*2	22.2*4	

Note:

- 1, Rated cooling capacity is tested under nominal air flow, indoor DB/WB temp. 27/19 °C and Environment temp. DB/WB35/24 °C;
- 2, Rated heating capacity is tested under nominal air flow, indoor temp. DB/WB 20/15 °C and environment temp. DB/WB7/6 °C;
- 3, Cooling capacity doesn't consider the fan motor heat loss, ESP is based on customer's requirement;
- 4, The outdoor unit is for single unit;
- 5, Parameter test piping condition: equivalent refrigerant length 7.5m(level);
- 6, Refrigerant charge is for reference, the detailed depends on the pipe length;
- 7, Outdoor unit operation range: cooling: 18~45 °C, heating:-10~21 °C;
- 8, The outdoor unit above QWSA150 don't have refrigerant;
- 9, There is no further information if any improvement changes

Model	Indoor unit	QWZE	2114	2018	2121	2521	2121	2624	
		QWZS							
		QWZW							
	Outdoor unit	Model	QWSA200B(R)2M	QWSA250B(R)2M	QWSA200B(R)2M	QWSA250B(R)2M	QWCA1050A(R)2X	QWCA1067A(R)2X	
	Qty	2	2	3	3	1	1		
Rated cooling capacity		kW	96.9	118.5	144.4	176.5	173	221	
Rated heating capacity		kW	104.5	122	152	182.5	225	256.5	
Power		—	380V/3N~/50Hz						
Indoor unit	Air flow	m <sup>3</sup> /h	20000	24000	30000	37500	30000	40000	
	Temperature control	—	Cooling: 22-26°C,Heating:18-22°C						
	Size	Width	m m	2150	2050	2170	2570	2170	2670
		Height	m m	1530	1930	2250	2250	2250	2550
		Length	m m	Depends on the functional section					
Outdoor unit	Compressor*qty		—	Scroll type*2				Semi-hermetical type*1	
	Cooling power input		kW	18.1	20.4	18.1	20.4	57	77.6
	Heating power input		kW	17	19.2	17	19.2	55.3	70.6
	Weight		kg	492	544	492	544	2650	2650
	Size	Length	m m	1808	1808	1808	1808	2400	2460
		Width	m m	1090	1090	1090	1090	2235	2235
		Height	m m	1190	1190	1190	1190	2400	2400
Refrigerant	Type	—	R 407C						
	Charge	kg	8.0*4	9.5*4	8.0*6	9.5*6	58	70	
Pipe	Connection	—	Welding						
	Liquid	Øm m	15.88*4	15.88*4	15.88*6	15.88*6	34.9	34.9	
	Steam	Øm m	28.6*4	28.6*4	28.6*6	28.6*6	66.68	66.68	

Note:

- 1, Rated cooling capacity is tested under nominal air flow, indoor DB/WB temp. 27/19 °C and Environment temp. DB/WB35/24 °C;
- 2, Rated heating capacity is tested under nominal air flow, indoor temp. DB/WB 20/15 °C and environment temp. DB/WB7/6 °C;
- 3, Cooling capacity doesn't consider the fan motor heat loss, ESP is based on customer's requirement;
- 4, The outdoor unit is for single unit;
- 5, Parameter test piping condition: equivalent refrigerant length 7.5m(level);
- 6, Refrigerant charge is for reference, the detailed depends on the pipe length;
- 7, Outdoor unit operation range: cooling: 18~45 °C, heating:-10~21 °C;
- 8, The outdoor unit above QWSA150 don't have refrigerant;
- 9, There is no further information if any improvement changes

## 4 AIR COOLED DX TYPE PARAMETERS(R407C)

Model	Indoor unit		QWZE	2824	3027	3427	3530
			QWZS				
			QWZW				
	Outdoor unit		Model	QWCA1078A(R)2X	QWCA1093A(R)2X	QWCA1108A(R)2X	QWCA1130A(R)2X
Qty			1	1	1	1	
Rated cooling capacity			kW	255	305	350	424
Rated heating capacity			kW	296	353	404	489
Power			—	380V/3N~/50Hz			
Indoor unit	Air flow		m <sup>3</sup> /h	50000	60000	70000	80000
	Temperature control		—	Cooling: 22-26°C,Heating:18-22°C			
	Size	Width	m m	2870	3100	3500	3600
		Height	m m	2550	2900	2900	3200
		Length	m m	Depends on the functional section			
Outdoor unit	Compressor*qty		—	Semi-hermetical type*1			
	Cooling power input		kW	85.3	108.9	121.5	144.1
	Heating power input		kW	77.5	99.9	111.5	131.3
	Weight		kg	2850	3650	3740	4200
	Size	Length	m m	2460	3435	3520	4500
		Width	m m	2235	2235	2235	2235
		Height	m m	2400	2400	2600	2740
Refrigerant	Type		—	R 407C			
	Charge		kg	76	95	107	130
Pipe	Connection		—	Welding			
	Liquid		Øm m	34.9	34.9	34.9	41.3
	Steam		Øm m	79.4	79.4	79.4	79.4

Note:

- 1, Rated cooling capacity is tested under nominal air flow, indoor DB/WB temp. 27/19 °C and Environment temp. DB/WB35/24 °C;
- 2, Rated heating capacity is tested under nominal air flow, indoor temp. DB/WB 20/15 °C and environment temp. DB/WB7/6 °C;
- 3, Cooling capacity doesn't consider the fan motor heat loss, ESP is based on customer's requirement;
- 4, The outdoor unit is for single unit;
- 5, Parameter test piping condition: equivalent refrigerant length 7.5m(level);
- 6, Refrigerant charge is for reference, the detailed depends on the pipe length;
- 7, Outdoor unit operation range: cooling: 18~45 °C, heating: -10~21 °C;
- 8, The outdoor unit above QWSA150 don't have refrigerant;
- 9, There is no further information if any improvement changes

## 5 ISOTHERMAL & ISOHUMIDITY PARAMETERS(R407C)

Model	Indoor unit		QWZE	0909	1209	1409	1511	1512
			QWZS					
			QWZW					
	Outdoor unit		Model	QWSA100B2(R)X	QWSA125B2(R)X	QWSA150B2(R)X	QWSA200B2(R)X	QWSA250B2(R)
Qty			1	1	1	1	1	
Rated cooling capacity			kW	24.6	27.5	33.7	45.6	56
Rated heating capacity			kW	26.3	30.2	36.5	50.2	61.5
Electrical heating			kW	16	20	24	28	32
Humidification			K g/h	8	10	13	18	22
Power			—	380V/3N~/50Hz				
Indoor unit	Air flow		m <sup>3</sup> /h	5000	6500	7500	10000	12000
	Temp. set		—	22~26℃±1℃（heat pump heating±2℃）				
	Humidity set		—	45~65% ±5% RH （heat pump heating10% RH）				
	Size	Width	m m	950	1250	1450	1550	1550
		Height	m m	1030	1030	1030	1230	1330
		Length	m m	Depends on the functional section				
Outdoor unit	Compressor*qty		—	Scroll type*2				
	Cooling power input		kW	8.76	10.5	11.9	18.1	20.4
	Weight		kg	232	252	305	480	532
	Size	Length	m m	1403	1558	1558	1808	1808
		Width	m m	821	882	882	1090	1090
		Height	m m	980	1170	1170	1190	1190
Refrigerant	Type		—	R 407C				
	Charge		kg	4.0*2	5.1*2	6.2*2	8.0*2	9.5*2
Pipe	Connection		—	Indoor unit welding/outdoor unit flared		Welding		
	Liquid	Øm m	12.7*2	12.7*2	12.7*2	15.88*2	15.88*2	
	Steam	Øm m	19.05*2	19.05*2	22.2*2	28.6*2	28.6*2	

Note:

- 1, Rated cooling capacity is tested under nominal air flow, indoor DB/WB temp. 24/17 °C and Environment temp. DB/WB35/24 °C;
- 2, Cooling capacity doesn't consider the fan motor heat loss, ESP is based on customer's requirement;
- 3, Standard unit is electrical heater, also can make hot water heater and steam heater;
- 4, The outdoor unit is for single unit;
- 5, Parameter test piping condition: equivalent refrigerant length 7.5m(level);
- 6, Refrigerant charge is for reference, the detailed depends on the pipe length;
- 7, The outdoor unit above QWSA150 don't have refrigerant;
- 8, When environment temp. is lower than 18 °C still need cooling, please select the outdoor unit with condensing pressure control;
- 9, There is no further information if any improvement changes.

## 5 ISOTHERMAL & ISOHUMIDITY PARAMETERS(R407C)

Model	Indoor unit		QWZE	1812	2114	2018	2121	2521
			QWZS					
			QWZW					
	Outdoor unit		Model	QWSA150B2(R)X	QWSA200B2(R)X	QWSA250B2(R)X	QWSA150B2(R)X	QWCA1050A2(R)X
Qty			2	2	2	4	1	
Rated cooling capacity			kW	67.5	92	114	134	169
Rated heating capacity			kW	73.1	101.2	125.1	145	186
Electrical heating			kW	38	50	65	75	100
Humidification			K g/h	25	35	43	54	60
Power			—	380V/3N~/50Hz				
Indoor unit	Air flow		m <sup>3</sup> /h	15000	20000	24000	30000	37500
	Temp. set		—	22–26℃±1℃（heat pump heating±2℃）				
	Humidity set		—	45–65% ±5% RH（heat pump heating10% RH）				
	Size	Width	m m	1850	2150	2050	2170	2570
		Height	m m	1330	1530	1930	2250	2250
		Length	m m	Depends on the functional section				
Outdoor unit	Compressor*qty		—	Scroll type*2				Semi-hermetical type*
	Cooling power input		kW	11.9	18.1	20.4	11.9	64
	Weight		kg	305	480	532	305	2050
	Size	Length	m m	1558	1808	1808	1558	2460
		Width	m m	882	1090	1090	882	2235
		Height	m m	1170	1190	1190	1170	2400
Refrigerant	Type		—	R 407C				
	Charge		kg	6.2*4	8.0*4	9.5*4	6.2*8	60
Pipe	Connection		—	Welding				
	Liquid		Øm m	12.7*4	15.88*4	15.88*4	12.7*8	34.9
	Steam		Øm m	22.2*4	28.6*4	28.6*4	22.2*8	66.68

Note:

- 1, Rated cooling capacity is tested under nominal air flow, indoor DB/WB temp. 24/17°C and Environment temp. DB/WB35/24°C;
- 2, Cooling capacity doesn't consider the fan motor heat loss, ESP is based on customer's requirement;
- 3, Standard unit is electrical heater, also can make hot water heater and steam heater;
- 4, The outdoor unit is for single unit;
- 5, Parameter test piping condition: equivalent refrigerant length 7.5m(level);
- 6, Refrigerant charge is for reference, the detailed depends on the pipe length;
- 7, The outdoor unit above QWSA150 don't have refrigerant;
- 8, When environment temp. is lower than 18°C still need cooling, please select the outdoor unit with condensing pressure control;
- 9, There is no further information if any improvement changes.

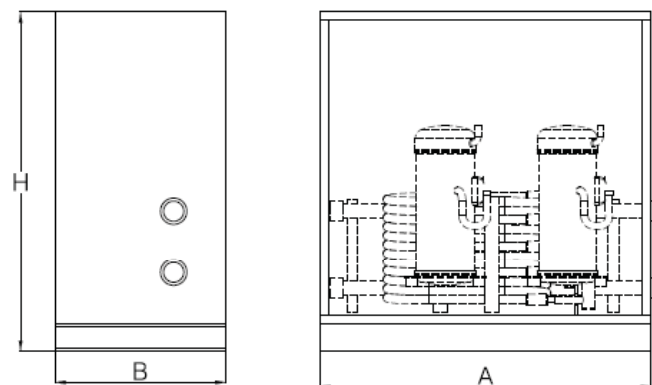
Model	Indoor unit		QWZE	2624	2824	3027	3427	3530
			QWZS					
			QWZW					
	Outdoor unit		Model	QWCA1067A2(R)X	QWCA1078A2(R)X	QWCA1093A2(R)X	QWCA1108A2(R)X	QWCA1130A2(R)X
Qty			1	1	1	1	1	
Rated cooling capacity			kW	214	245	295	337	409
Rated heating capacity			kW	235	269	324	370	450
Electrical heating			kW	120	140	160	180	220
Humidification			K g/h	65	80	90	100	120
Power			—	380V/3N <sup>—</sup> /50Hz				
Indoor unit	Air flow		m <sup>3</sup> /h	40000	50000	60000	70000	80000
	Temp. set		—	22–26℃±1℃（heat pump heating±2℃）				
	Humidity set		—	45–65% ±5% RH（heat pump heating 10% RH）				
	Size	Width	m m	2770	2870	3100	3500	3600
		Height	m m	2270	2570	2900	2900	3200
		Length	m m	Depends on the functional section				
Outdoor unit	Compressor*qty		—	Semi-hermetical type*1				
	Cooling power input		kW	77.6	85.3	108.9	121.5	144.1
	Weight		kg	2580	2780	3570	3660	4100
	Size	Length	m m	2460	2460	3435	3520	4500
		Width	m m	2235	2235	2235	2235	2235
		Height	m m	2400	2400	2400	2600	2740
Refrigerant	Type		—	R407C				
	Charge		kg	70	76	95	107	130
Pipe	Connection		—	Welding				
	Liquid		Øm m	34.9	34.9	34.9	34.9	41.3
	Steam		Øm m	66.68	79.4	79.4	79.4	79.4

Note:

- 1, Rated cooling capacity is tested under nominal air flow, indoor DB/WB temp. 24/17°C and Environment temp. DB/WB35/24°C;
- 2, Cooling capacity doesn't consider the fan motor heat loss, ESP is based on customer's requirement;
- 3, Standard unit is electrical heater, also can make hot water heater and steam heater;
- 4, The outdoor unit is for single unit;
- 5, Parameter test piping condition: equivalent refrigerant length 7.5m(level);
- 6, Refrigerant charge is for reference, the detailed depends on the pipe length;
- 7, The outdoor unit above QWSA150 don't have refrigerant;
- 8, When environment temp. is lower than 18°C still need cooling, please select the outdoor unit with condensing pressure control;
- 9, There is no further information if any improvement changes.

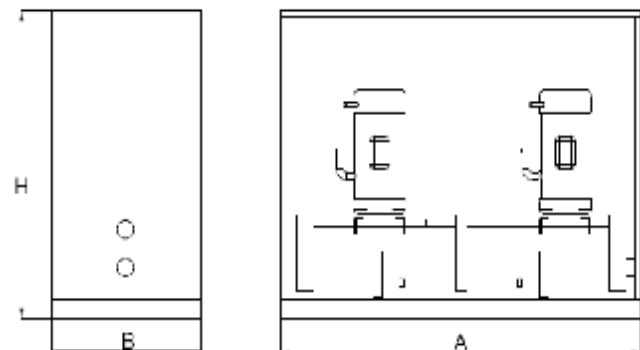
## 6 WATER COOLED COMPRESSION CONDENSING OUTLINE SIZE

### 1 QWCW1008AX/QWCW1010AX/QWCW1012AX/QWCW2015AX



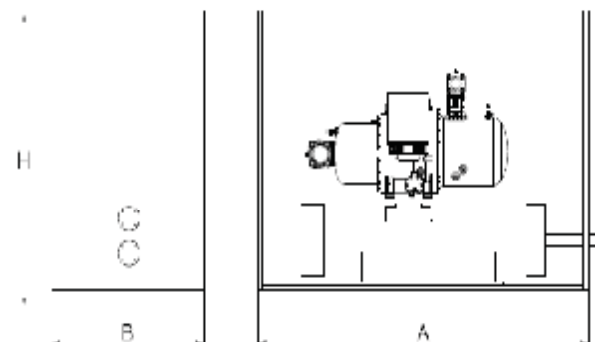
MODEL	A	B	H
QWCW1008AX	950	900	1030
QWCW1010AX	1250	900	1030
QWCW1012AX	1450	900	1030
QWCW2015AX	1550	900	1230

### 2 QWCW2020AX/QWCW2025AX/QWCW3030AX/QWCW3036AX QWCW4040AX/QWCW4050AX/QWCW5060AX



MODEL	A	B	H
QWCW2020AX	1650	900	1330
QWCW2025AX	1850	900	1330
QWCW3030AX	1950	900	1530
QWCW3036AX	2150	900	1530
QWCW4040AX	2050	1200	1930
QWCW4050AX	2170	1200	2250
QWCW5060AX	2770	1200	1950

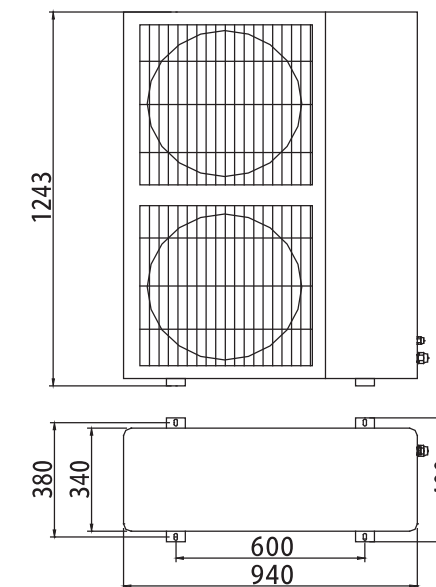
### 3 QWCW1058AX/QWCW1078AX/QWCW1092AX/QWCW1107AX QWCW1115AX/QWCW1127AX



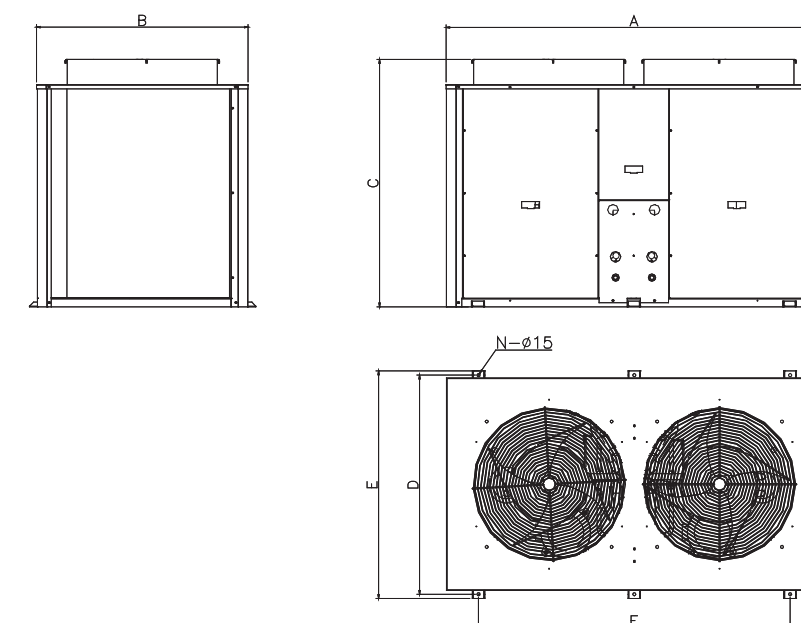
MODEL	A	B	H
QWCW1058AX	2870	1500	2250
QWCW1078AX	2870	1500	2550
QWCW1092AX	3100	1500	2900
QWCW1107AX	3500	1500	2900
QWCW1115AX	3600	1500	3200
QWCW1127AX	4300	1500	3200

## 7 AIR COOLED OUTDOOR UNIT EXTERIOR APPEARANCE

### 1 QWSA050B(R)X/QWSA060B(R)X



### 2 QWSA075B(R)X/QWSA100B(R)X/QWSA125B(R)X/QWSA150B(R)X QWSA200B(R)X/200B(R)/250B(R)X/250B(R)M

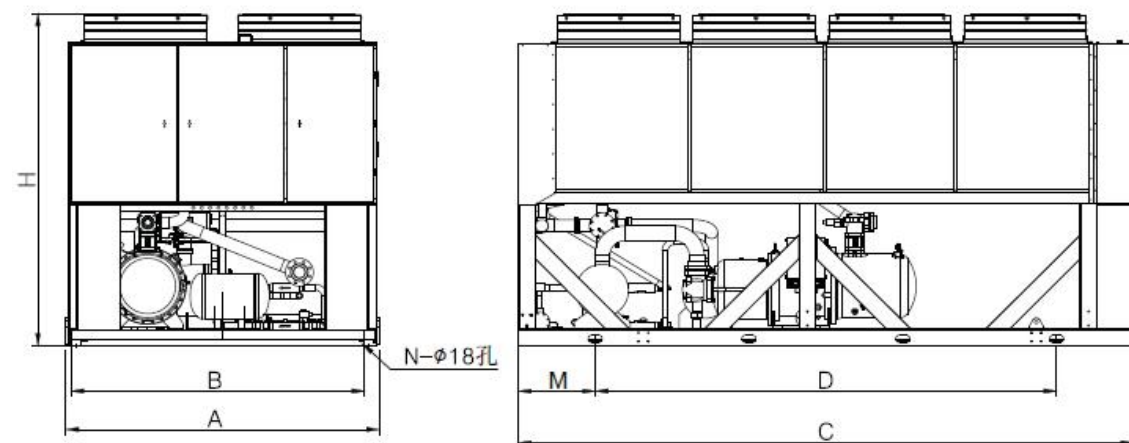




## 7 AIR COOLED OUTDOOR UNIT EXTERIOR APPEARANCE

MODEL	A	B	C	D	E	F	N
QWSA075B(R)X	1403	746	980	781	821	770	4
QWSA100B(R)X	1403	746	980	781	821	810	4
QWSA125B(R)X	1558	808	1170	842	882	880	4
QWSA150B(R)X/B(R)M	1558	808	1170	842	882	880	4
QWSA200B(R)X/B(R)M	1808	1018	1190	1050	1090	750p*2=1500	6
QWSA250B(R)X/B(R)M	1808	1018	1190	1050	1090	750p*2=1500	6

### 3 QWCA1050A(R)X/QWCA1067A(R)X/QWCA1078A(R)X QWCA1093A(R)X/QWCA1108A(R)X/QWCA1130A(R)X



MODEL	A	B	C	D	H	M	N
QWCA1050A(R)X	2235	2100	2460	900*2=1800	2400	330	6
QWCA1067A(R)X	2235	2100	2460	900*2=1800	2400	330	6
QWCA1078A(R)X	2235	2100	2460	900*2=1800	2400	330	6
QWCA1093A(R)X	2235	2100	3435	900*3=2700	2400	368	8
QWCA1108A(R)X	2235	2100	3520	900*3=2700	2600	368	8
QWCA1130A(R)X	2235	2100	4500	1100*3=3300	2740	368	8

## 8 CONTROL SYSTEM INSTRUCTION

Name		PLC controller A type		PLC controller B type	Normal unit	Fresh air unit
Device	Heat pump	Cooling chiller	Heat pump	Cooling chiller	Chiller/heat pump	Chiller/heat pump
	Refrigerant	R407C	R407C	R407C	R407C	R407C
	Electrical heater	Standard	Standard	Standard	Optional	Optional
	Humidifier	Standard	Standard	Standard	N	N
	Humidifier signal	Analog(0-10V)	Analog(0-10V)	Analog(0-10V)	N	N
Control	Temp.	Range	20-26℃	Cooling:20-26℃ Heating:18-22℃	20-26℃	Cooling:20-26℃ Heating:18-22℃
		Accuracy	±1℃	±1℃ ±2℃(heating)	±1℃	±2℃
	Humidity	Range	45-65%	45-65%	45-65%	N
		Accuracy	±5%	±5% ±10%(heating)	±5%	N
Control cabinet	Control type		PLC	PLC	PLC	Singlechip
	Mode		Auto	Auto	Cooling/Heating	Auto/cooling Heating/ventilation
	Timing ON/OFF		Y	Y	N	Y
	RS485		Optional	Optional	Optional	N
	Outdoor unit air switch		Optional	Optional	Optional	Optional
	Sterilizing equipment		Optional	Optional	Optional	N
	Interface	Type	Resistive touch screen	Resistive touch screen	Text LCD	Mechanical button Liquid crystal wire controller
		Local touch screen	7-inch, can be external	7-inch, can be external	N	N
		External touch screen	7/10-inch for optional	7/10-inch for optional	N	N
	Operation monitor	Local ON/OFF	Y	Y	Y	Y
		Operation status	Y	Y	Y	Y
		Fault status	Y	Y	Y	Y
	Interlock	Exhaust fan	Optional	Optional	Optional	Optional
		Exhaust valve	Optional	Optional	Optional	Optional
		Fresh air valve	Optional	Optional	Y	Optional
	Protection	Fire alarm	Y	Y	Y	Y
		Air loss protection	Y	Y	Y	Fitted with electrical heater
		Overheat protection	Y	Y	Y	Y
		Filter alarming	Y	Y	Y	N
	Emergency stop		Y	Y	Y	Y

Note:

- 1, All the above is the standard fittings for the unit, If you have any other requirements, please contact us;
- 2, R407c Unit has no 3C certificate

# 9 OUTDOOR UNIT ELECTRICAL PARAMETER

## 1 AIR COOLED DIRECT EXPANSION OUTDOOR UNIT

MODEL	QWSA	050B (R)X-M	060B (R)X-M	075B (R)X-M	100B (R)X-M	125B (R)X-M	150B (R)X-M	200B (R)X-M	250B (R)X-M
Power	380V/3N~/50Hz								
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	2.5mm <sup>2</sup>	4mm <sup>2</sup>	6mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>
	Qty	2	2	2	2	2	2	2	2

MODEL	QWSA	050BX-K/H	060BX-K/H	075BX-K/H	100BX-K/H	125BX-K/H	150BX-K/H	200BX-K/H	250BX-K/H
Power	380V/3N~/50Hz								
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	2.5mm <sup>2</sup>	4mm <sup>2</sup>	6mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>
	Qty	6	6	10	10	10	10	10	10

MODEL	QWSA	050BRX-H	060BRX-H	075BRX-H	100BRX-H	125BRX-H	150BRX-H	200BRX-H	250BRX-H
Power	380V/3N~/50Hz								
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	2.5mm <sup>2</sup>	4mm <sup>2</sup>	6mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>
	Qty	10	10	16	16	16	16	16	16

MODEL	QWSA	075BRNX	100BRNX	125BRNX	150BRNX	200BRNX	250BRNX	150BX-BAB-K/H	200BX-BAB-K/H
Power	380V/3N~/50Hz								
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	6mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>
	Qty	16	16	16	16	16	16	7	7

MODEL	QWSA	250BX-BAB-K/H	150BRX-BAB-H	200BRX-BAB-H	250BRX-BAB-H	150BRN-BAB	200BRN-BAB	250BRN-BAB
Power	380V/3N~/50Hz							
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	16mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	16mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>
	Qty	7	10	10	10	8	8	8

MODEL	QWCA	1050A (R)X	1067A (R)X	1078A (R)X	1093A (R)X	1108A (R)X	1130A (R)X	1153A (R)X
Power	380V/3N~/50Hz							
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	95mm <sup>2</sup>	120mm <sup>2</sup>	120mm <sup>2</sup>	185mm <sup>2</sup>	240mm <sup>2</sup>	240mm <sup>2</sup>	300mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5

Remark:

- 1, The power line is copper core, the working temperature can't higher than the specified value. The wires are used under 40 °C.
- 2, If the wire length is longer than 15, please enlarge the sectional area.

## 2 OUTDOOR UNIT OF WATER COOLED EXPANSION UNIT

MODEL	QWCW	1008AX	1010AX	1012AX	2015AX	2020AX	2025AX	3030AX	3036AX
Power	380V/3N~/50Hz								
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	4mm <sup>2</sup>	4mm <sup>2</sup>	4mm <sup>2</sup>	6mm <sup>2</sup>	10mm <sup>2</sup>	10mm <sup>2</sup>	16mm <sup>2</sup>	25mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>
	Qty	7	7	7	11	11	11	15	15

MODEL	QWCW	4040AX	4050AX	5060AX	1058AX	1078AX	1092AX	1107AX	1115AX
Power	380V/3N~/50Hz								
Power line	Type	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit	Outdoor unit
	Sectional area mm <sup>2</sup>	25mm <sup>2</sup>	35mm <sup>2</sup>	50mm <sup>2</sup>	35mm <sup>2</sup>	50mm <sup>2</sup>	70mm <sup>2</sup>	95mm <sup>2</sup>	95mm <sup>2</sup>
	Qty	5	5	5	5	5	5	5	5
Connection wire	Sectional area mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	1mm <sup>2</sup>	-	-	-	-	-
	Qty	19	19	19	-	-	-	-	-

Remark:

- 1, The power line is copper core, the working temperature can't higher than the specified value. The wires are used under 40 °C.
- 2, If the wire length is longer than 15, please enlarge the sectional area.

# 10 COOLING/HEATING CAPACITY CORRECTION COEFFICIENT

## 1 EFFECT OF INDOOR AND OUTDOOR CONDITIONS OF REFRIGERATION AND HEATING OPERATION

### Cooling

Air inlet temp. °C in room		Water cooled condenser water inlet temp. °C			
DB	WB	25	30	35	40
23	16	1.0	0.97	0.94	0.91
25	18	1.03	1.0	0.97	0.94
27	19	1.06	1.03	1.0	0.97
28	20	1.10	1.08	1.05	1.02
30	22	1.16	1.13	1.10	1.07
32	24	1.21	1.18	1.15	1.12

Air inlet temp. °C in room		Air inlet DB temperature outdoor °C				
DB	WB	25	30	35	40	45
23	16	0.98	0.94	0.89	0.85	0.81
25	18	1.05	1	0.95	0.9	0.85
27	19	1.1	1.05	1	0.95	0.90
28	20	1.12	1.07	1.02	0.96	0.91
30	22	1.19	1.13	1.08	1.02	0.96
32	24	1.26	1.20	1.15	1.08	1.03

### Heating

Air inlet temp. °C in room DB	Air inlet DB temperature outdoor °C				
	-5	0	6	10	15
16	0.77	0.89	1.02	1.13	-
18	0.77	0.88	1.02	1.12	-
20	0.76	0.87	1	1.11	1.25
21	0.76	0.78	0.99	1.10	1.24
22	0.75	0.86	0.97	1.09	1.23
24	0.75	0.85	0.96	1.08	1.22

Remark:

- 1, Cooling operation, the main factor affect cooling capacity is room temp. WB and environment temp. DB;  
heating operation the main factor affect heating capacity is DB temp. in room and environment WB temp.
- 2, The factor is only for your reference.

## 2 INDOOR AIR VARIATION ON THE REFRIGERATING CAPACITY EFFECTS REFER TO THE FOLLOWING TABLE:

Indoor unit rated air flow%	80	90	100	110	120
Cooling capacity correction coefficient	0.91	0.96	1	1.06	1.11

## 3 WHEN THE LENGTH OF THE CONNECTING PIPE IS TOO LONG OR THE HEIGHT DIFFERENCE BETWEEN THE TWO MACHINES IS TOO LARGE, THE COOLING CAPACITY WILL BE AFFECTED, THE CORRECTION FACTOR OF REFRIGERATING CAPACITY IS SHOWN IN TABLE BELOW:

Factor		Correct coefficient									
Pipe equivalent length		5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
Outdoor unit higher than indoor unit	0m	1	0.98	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	5m	1	0.97	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.81
	10m	-	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82	0.80
	15m	-	-	0.93	0.91	0.89	0.87	0.85	0.83	0.81	0.79
	20m	-	-	-	0.90	0.88	0.86	0.84	0.82	0.80	0.78
Indoor unit higher than outdoor unit	25m	-	-	-	-	0.87	0.85	0.83	0.81	0.79	0.77
	0m	1	0.98	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82
	5m	1	0.97	0.95	0.93	0.91	0.89	0.87	0.85	0.83	0.81
	10m	-	0.96	0.94	0.92	0.90	0.88	0.86	0.84	0.82	0.80
	15m	-	-	0.93	0.91	0.89	0.87	0.85	0.83	0.81	0.79
	20m	-	-	-	0.90	0.88	0.86	0.84	0.82	0.80	0.78
	25m	-	-	-	-	0.87	0.85	0.83	0.81	0.79	0.77

Note: the pipe equivalent length = pipe + bend + loop equivalent length

## 4 ELBOW AND OIL BENDING EQUIVALENT LENGTH TABLE:

Steam pipe(in)	3/4	7/8	1-1/8	2-1/8	2-5/8	3-1/8
Bend	0.35m	0.40m	0.50m	0.65m	0.70m	0.8m
Oil loop	2.4m	2.8m	3.7m	4.8m	5.5m	6.0m

## 10 COOLING/HEATING CAPACITY CORRECTION COEFFICIENT

### 5 INDOOR AIR VARIATION ON THE REFRIGERATING CAPACITY EFFECTS REFER TO THE FOLLOWING TABLE:

Outdoor model	Refrigerant pipe		Max. length of the pipe	Max. qty of the bend
	Steam pipe mm	Liquid pipe mm		
QWSA050	Ø19.05	Ø9.52	35/20	10
QWSA060	Ø19.05	Ø9.52	35/20	10
QWSA075	Ø19.05*2	Ø12.7*2	35/20	10
QWSA100	Ø19.05*2	Ø12.7*2	35/20	10
QWSA125	Ø19.05*2	Ø12.7*2	35/20	10
QWSA150	Ø22.22*2	Ø12.7*2	35/20	10
QWSA200	Ø28.6*2	Ø15.88*2	50/25	15
QWSA250	Ø28.6*2	Ø15.88*2	50/25	15
QWSA150*2	Ø22.22*4	Ø12.7*4	35/20	10
QWSA200*2	Ø28.6*4	Ø15.88*4	50/25	15
QWSA250*2	Ø28.6*4	Ø15.88*4	50/25	15
QWSA200*3	Ø28.6*6	Ø15.88*6	50/25	15
QWSA250*3	Ø28.6*6	Ø15.88*6	50/25	15

### 6 SPLIT AIR CONDITIONER INDOOR AND OUTDOOR MACHINE CONNECTING PIPE LENGTH INCREASED 1 METERS, REFRIGERANT REPLENISHMENT SEE TABLE:

Liquid pipe(in)	3/8	1/2	5/8	3/4	7/8	1-1.8	1-3.8	1-5.8
Supply refrigerant	0.06	0.11	0.18	0.26	0.37	0.62	0.95	1.32

Remark:

If the connected pipe is longer than 20m(single trip), it needs more lube

### 7 NOMINAL OPERATING CONDITION

Name	In room		Outside the room			
	DB °C	WB °C	Water cooled		Air cooled	
			Water inlet °C	Water outlet °C	DB °C	WB °C
Isothermal & Isohumidity	24	17	30	35	35	--
Cooling	27	19	30	35	35	--
Heat pump heating	20	--	--	--	7	6
Electrical heater heating	20	--	--	--	--	--
All fresh air in summer	35	28	30	35	35	--

### 8 NORMAL RANGE OF OPERATION

Range	Type	Cooling		Heating	Remark
		Water cooled	Air cooled		
Environment temp. (°C)	--	--	18~45	-10~21	Return air Working condition
Room return temp. (°C)	--	18~32	18~32	≤27	
Condenser water inlet (°C)	--	20~34	--	--	
Condenser water pressure (MPa)	--	<1.0	--	--	
Fresh air temp. (°C)	--	--	25~43	-6~14	Fresh air working condition

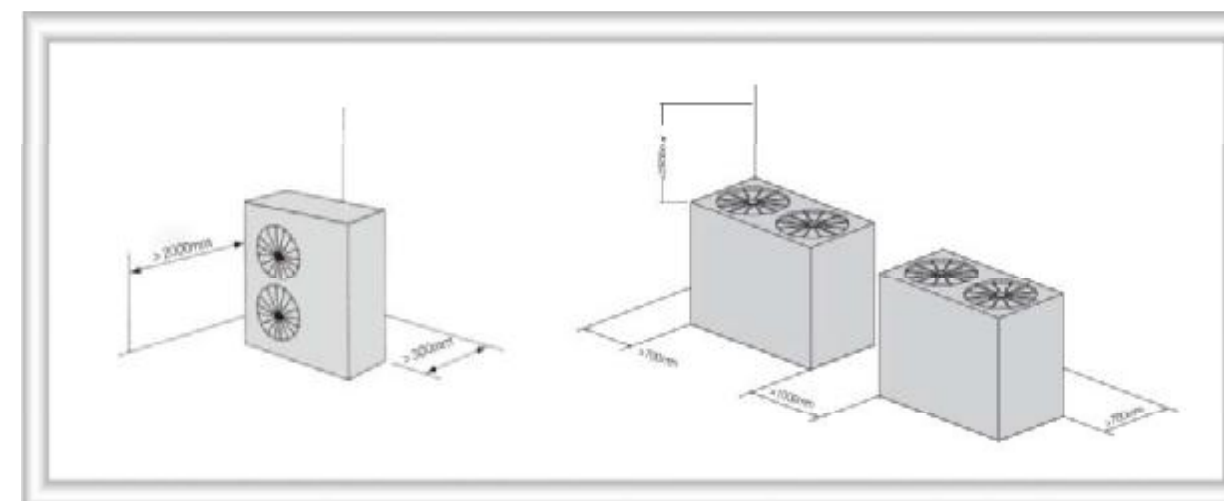
Note:

- 1, If the working environment is exceed the above range, the unit will start the protection device;
- 2, Within the above working range, parameters will change, please refer to the correction factor;
- 3, The unit is out of the above is non-standard design.

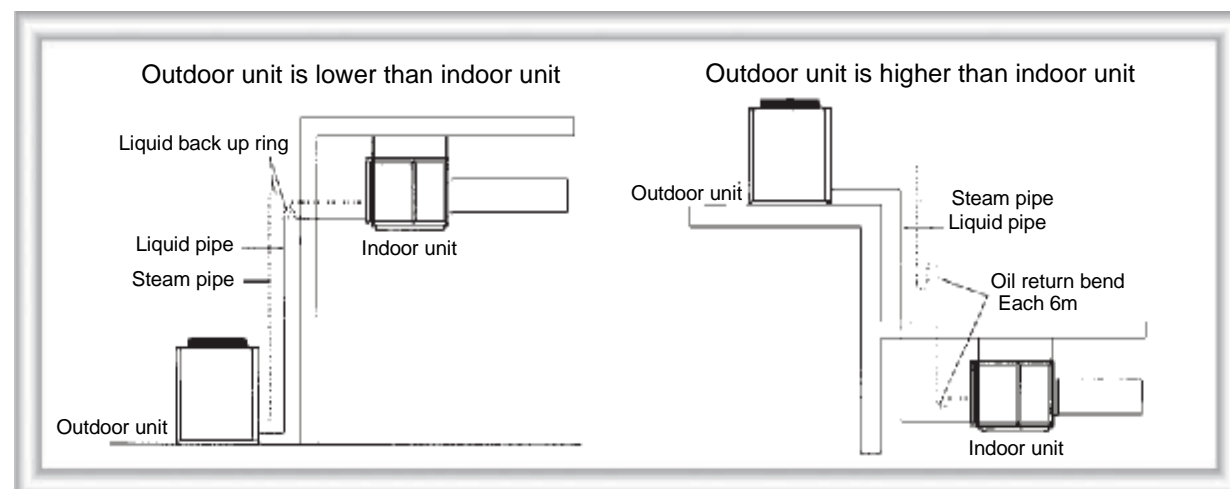
## 11 OUTDOOR UNIT INSTALLATION

- The outdoor unit installation place should be far away from the place where is flammable and explosive, dusty, valley, and high temperature;
- Please keep enough space for air inlet/outlet and maintenance;
- Any barriers will influence the cooling/heating capacity, and it cause inconvenience to maintenance;
- Please refer to the drawing according to the following drawing.

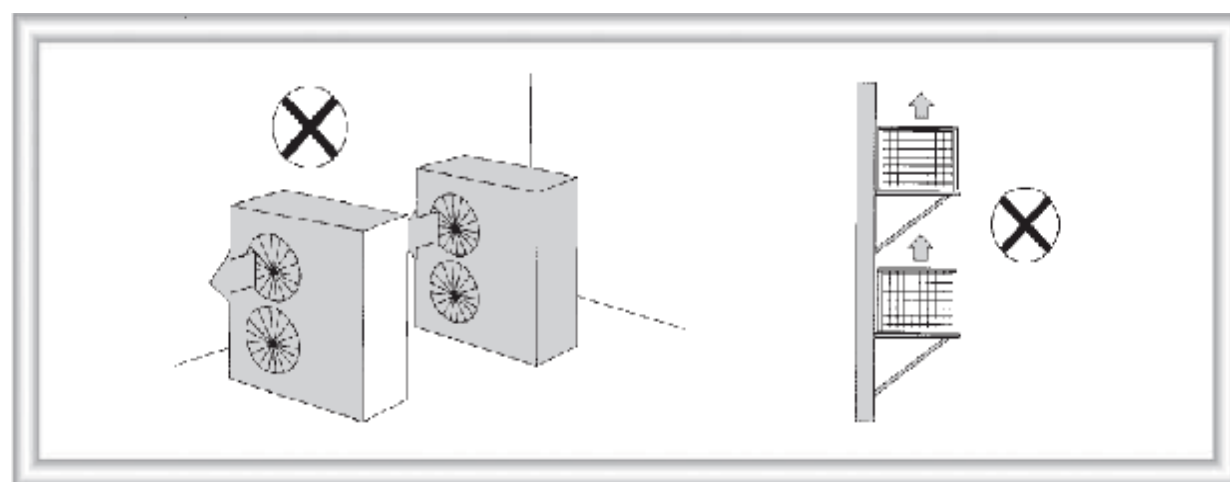
Outdoor unit should have enough heat dissipation space;



Based on the installation location, the steam pipes need oil return bend.



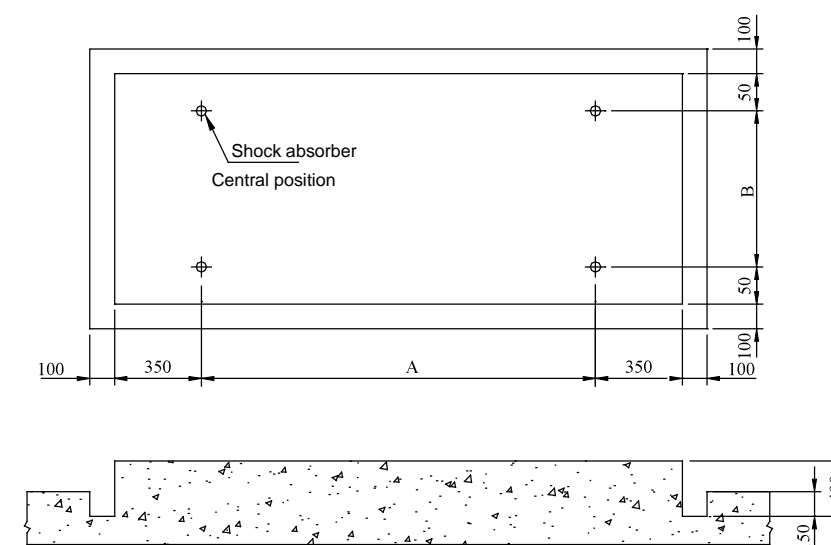
Outdoor unit should avoid the exhaust air short cut.



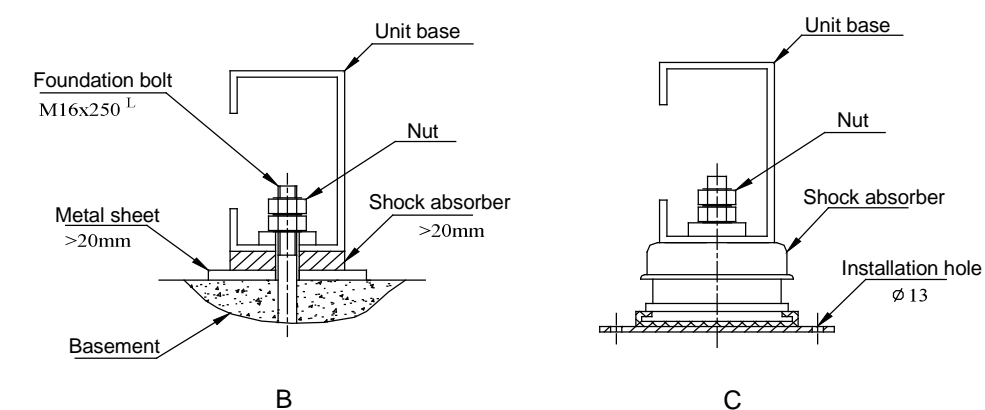
## 12 OUTDOOR UNIT INSTALLATION FOUNDATION

- The unit should be installed on a smooth solid surface with reinforced concrete cement or strong steel structure support. They must be able to support the unit weight and vibration resulted from the unit operation.
- The concrete cement foundation surface does apply the cement as leveling surface with waterproof treatment. The surrounding of the foundation should be constructing the water drainage system that its slide angle should be larger than 0.5% so that it is easy for drain out to the drainage outlet.
- In order to let the unit equipment operate quietly and avoid the vibration and the noise transmission to the lower floor, it is necessary to place a vibration isolator between the foundation and unit base. Leveling must be maintained by placing additional anti-vibration pad is necessary.

- The earthquake, typhoon, and longtime operation may make the unit movement, and cause the pipe twist and broke, in order to avoid this happening, please consider the fixed measure.
- The unit installation basement and fixed method please refer to the following drawing:



Installation Basement



Remark:

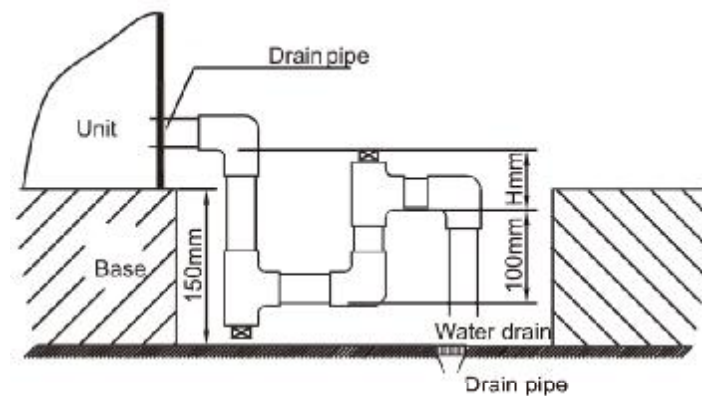
- The installation hole size please refer to the unit outline size, A means the max. hole space in Width;
- Use B fixed type, based on the installation hole location, please reserve the bolts installation hole;
- Use C fixed type, reserve the shock absorber installation bolts hole, we can supply the shock absorber.



## 13 INDOOR UNIT INSTALLATION FOUNDATION

- Ensure the indoor unit installation basement in horizontal level;
- Around the unit, specially the pipe and service side should have enough space( suggest not less than 1 meter) for the daily maintenance;
- Condenser water outlet should be set water seal, then connected to the outside pipes;
- The connection between the indoor unit and the ducts pipes should use flexible connection, to prevent the vibration transfer.

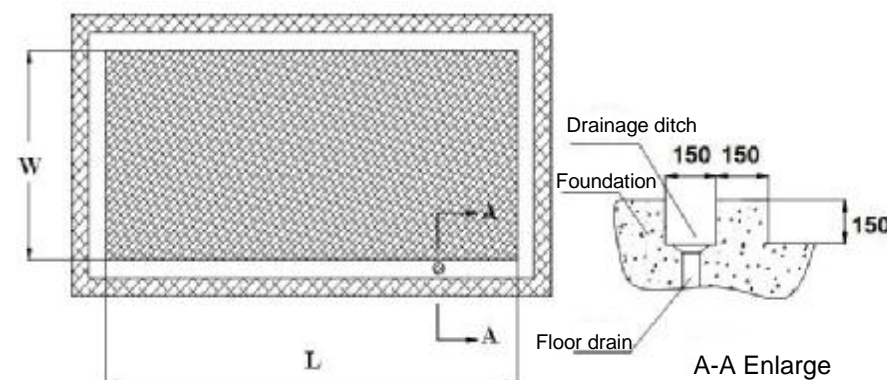
### 1 WATER SEAL DIAGRAM:



$$H = \text{Unit inside static pressure (mmH}_2\text{O)} + 20$$

When H is bigger than 750Pa, please add the basement height.

### 2 SCHEMATIC DIAGRAM OF UNIT FOUNDATION:



L- unit length W-unit width