



*WATER CHILLERS WITH SINGLE SCREW COMPRESSOR
ZUW-B FLOODED SERIES*



2014 NEW PRODUCT

Long History

Daikin Central Air Conditioning Co., Ltd., one of the water chiller developing pioneers in Japan, has nearly 100 years history. Developing the high-performance semi-hermetic single-screw compressor to begin with in 1978, Daikin has become a leading single-screw compressor manufacturer in the world with the aim to satisfy every user's need and try its best to create highly comfortable air conditioning environment.

Stable Growth

Daikin takes the lead in terms of market share of single-screw compressors in Japan which are sold more than 60,000 units in the world. High-performance products together with the targeted and professional proposing-style sales method make Daikin central air conditioners widely used in various fields, including special ones involving hospitals and wine brewing, etc.

Excellent Technology

Through nearly 100 years of experiences and reliable refrigerant technology with efficient single screw compressor by highly intelligent control. Daikin achieves efficient, reliable performance and longer service life. Daikin provides enough satisfaction to customers.

Solid Manufacturing

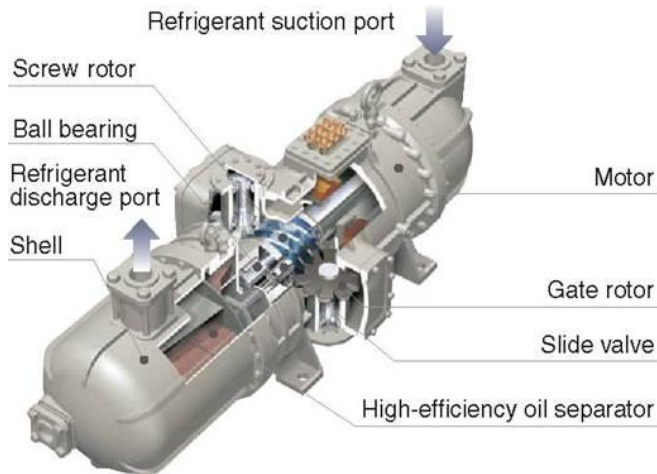
The overall unit manufacturing base (Daikin Central Air Conditioning Co., Ltd in Huizhou), is supported by the Suzhou compressor plant and Changshu Fluorine chemistry plant(both Daikin correlate), has powerful production capacity and R&D capacities of chiller and the capacity for manufacturing key components. Thus making product quality get more guarantee.

Reliable Service

The Central Air Conditioning After-Sales service Centre working closely with sales offices and factories can dispatch the service personnel to the work site within 24 hours, thus ensuring various problems can be solved timely. And the centre has a large number of after-sales service talents adhering to the quality principle of "Keep Improving", who can provide more professional service.

[Giving careful thought to important parts such as compressor, heat exchanger and expansion valve, our chiller acquires superb performance and reliability]

Semi-hermetic single-screw compressor



High accuracy and long service life

The upper part pressure and lower part pressure of the screw do eliminating eccentric effect and balancing the load.

The high-accuracy bearing used in the orthogonal screw structure, boasts a service life twice more than that of the bearing in a twin-screw compressor, effectively extending the maintenance interval of the chiller to 40,000 hours.



Working mechanism of a single-screw compressor

(1) Suction

Refrigerant is sucked into the screw rotor groove through the suction pipe, and when the screw rotor rotates, one tooth of the gate rotor engages with the groove, shutting the suction gas inlet.



(2) Compression

Compression strokes take place in the compression space formed by the screw rotor groove and gate rotor tooth. When the compression space decreases during the rotor rotation, the refrigerant inside is compressed and the pressure rises to the discharge level.



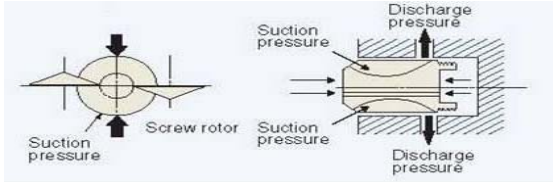
(3) Discharge

The pressure in the compression space reaches the discharge level. Compressed gas is discharged from upper discharge port.



■ **Low noise and low vibration**

The high-performance gate rotors mesh smoothly, minimizing shock and vibration, realizing stable running. Besides, two rotors are mounted symmetrically to make pressure balanced, thus significantly suppressing noise and vibration.



■ **High-efficiency operation**

Every rotation cycle consists of 12 compressions. Compared with traditional twin-screw compressors, almost no energy loss occurs to the semi-hermetic single-screw compressor, thanks to absence of gas mixing-up between the high pressure side and low pressure side. What's more, the gate rotor is made from high molecular material, reducing leakage loss by improving tightness, thus substantially enhancing the full-load and part-load efficiency.

Electronic expansion valve

- The electronic expansion valve adjusts delicately according to change of compressor load, thus achieving high-efficiency operation status.
- Adopting electronic valve to control refrigerant, thus the chiller runs more smoothly and stably.

Flooded type evaporator

By calculating and analyzing refrigerant flow in the evaporator, redesigned the suction distributing plate, make the refrigerant flow control in a more appropriate level. At the same time, adopting the special shape heat exchange pipe which can enhance the refrigerant boiling. With these achieving high performance and minimum size successfully.

「Brand new product with good performance」

Brand-new product perfectly match to customers' demands

- The whole series adopts environmental refrigerant R134a featuring no harm to the ozone layer, which can actively respond to the environmental needs.
- Equipped with continuous capacity control compressor, the whole series can conduct continuative energy regulation within a range of 25% to 100%, thus achieving high-precision water temperature control.

Excellent control system

- New PLC controller (monitoring running parameter by digital color monitor)



- The special developed new type PLC controller is adopted to expand unit monitoring and control function.
- Equipped with various digital sensors which can collect all the unit operation parameter.

- Abundant expansion and option functions .

- Unit reserve diversified control expansion functions, RS485 communication interface, Modbus, Bacnet, Lonworks protocol.
- Unit adopt standard Y- Δ starting method, it is able to select soft starter or frequency transformer to achieve soft starter functions to perfectly match to customers' demands.

Diversified control system functions

- Various operation mode settings are available for meeting users' various needs.

- | | |
|--|--|
| · Operation system selection | · Cooling water pump interlock and forced operation selection |
| · Inlet/outlet water temperature control selection | · Chilled water pump interlock and forced operation selection |
| · Forced load operation setting | · Energy-saving operation mode setting |
| · Remote / Local control selection | · Cold accumulation/duo-temperature setting selection |
| | · Achieving time switch to control unit ,no need to watch over |

[Diversified protection functions and Powerful control systems]

■ Various automatic protection devices ensure safety of unit operation. (When protection devices trip, malfunction causes and abnormal operation parameters will be displayed directly in the control panel.)

- Protections of reverse phase, open phase and voltage imbalance for 3-phase power supply
- Protections of current imbalance and overcurrent
- Compressor motor overheat protection
- High/Low pressure protection
- Compressor positioner error protection
- Protections of compressor suction/discharge superheat degree abnormality
- Freeze-up protections of chilled water and freeze-up pressure protections of refrigerant system
- Protections of pump interlock and water flow switch abnormality
- Protections of temperature, pressure and current sensors abnormalities

■ LCD control panel displays operation parameters of unit.

- Cooling water and chilled water inlet/outlet temperature
- Suction/Discharge, condensing and evaporating temperatures of refrigerant system
- Condensing and evaporating pressures of refrigerant system
- Compressor load and electronic expansion valve opening
- 3-phase operating current value
- Current operation time and accumulated operating time of system, start frequency and start waiting time.

■ Abnormity-shunning operation functions

- Forced operation of water pump during unit stop for anti-freezing in winter .

■ Large size color LCD touch screen, so easy to operate

Operation monitoring

The unit operation basic parameters, detailed parameters, input/output and temperature curve

Temperature setting

Setting the unit operation control model and water temperature

Login/Exit

By user's password make login/exit to control panel.

System information

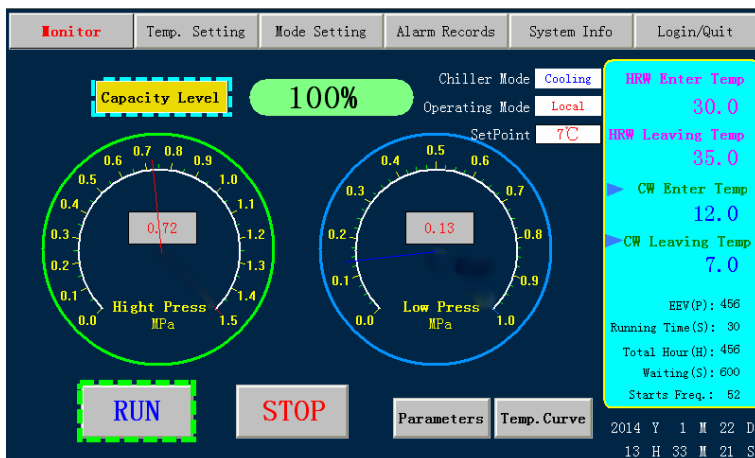
Use for seeing the supplier and related unit information

Record of alarm information

Use for checking the details and history record of unit abnormal condition

Operation setting

Setting the operation method, parameters and other related control setting



(Language is available in English, Chinese)

■ Specifications

MODEL		ZUW100BS5Y	ZUW120BS5Y	ZUW150BS5Y	ZUW175BS5Y	ZUW200BS5Y
Cooling Capacity (50Hz/380V)	USRT	103.8	129.1	156.4	184.9	199.4
	kW	365	454	550	650	701
	kcal/h	313,900	390,440	473,000	559,000	602,860
Power Consumption	kW	66.2	82.5	95.2	111.5	120.7
COP		5.51	5.50	5.78	5.83	5.81
Casing/Color		Iron White (5Y7.5/1)				
Chiller Water(50Hz)	m ³ /h	62.8	78.1	94.6	111.8	120.6
	l/min	1046	1301	1577	1863	2010
Condenser Water(50Hz)	m ³ /h	78.5	97.6	118.3	139.8	150.7
	l/min	1308	1627	1971	2329	2512
Dimensions(L×W×H)	mm	3570×1170×1710			3500×1380×1820	
Compressor	Type	Semi-hermetically Sealed Single Screw Type				
	Model	ZHA9LSG2YE*1	ZHA9WSG2YE*1	ZHA23VH2YE*1	ZHA23VH2YEV*1	ZHA23WH2YE*1
	Starting Method	Star-delta Starting				
	Capacity Control	%	25-100% Continuous Capacity Control			
Condenser	Type	Shell				
	Quantity×Model	CF4530-B100×1	CF4530-B120×1	CF5030-B150×1	CF5030-B175×1	CF5030-B200×1
	Type	Flooded				
	Quantity×Model	WF5030-B100×1	WF5030-B120×1	WF5530-B150×1	WF5530-B175×1	WF5530-B200×1
Refrigerant	Refrigerant	R134a				
	NO. of Circuit	1				
	Control	Electronic Expansion Valve				
	Charge	kg	140	140	170	200
Electric Control System		MICRO TECH III Program Controller, LCD Display				
Safety Devices		Main Circuit Fuse, Phase Monitor, reverse-phase protection, High/Low Pressure Protector, Over-Current-Sensor(Comp.), Overheat Protector(Comp.), Freeze-up protector thermostat, Overheat Sensor for Discharge Gas, Chilled water interrupt latency, Safety Valve				
Pipe OD	Chilled Water Inlet/Outlet	Φ140			Φ168	
	Condenser Water Inlet/Outlet	Φ140			Φ168	
Insulation Material		NBR/PVC Polyethelene Foam				
Machine Weight	kg	3050	3160	3380	3630	4230
Operation Weight	kg	3250	3380	3610	3910	4530
Evaporator Water Volume	l	200	220	230	280	300
Standard Attachment		Operation Manual, Fuse, Warranty card				

1. Cooling capacity is based on the following conditions:

Chilled water outlet temperature: 7℃; Chilled water flow rate 0.172m³/(h·kW)

Condenser water inlet temperature: 30℃; Condenser water flow rate 0.215m³/(h·kW)

2. Evaporator side fouling factor 0.018m²·℃/kW; Condenser side fouling factor 0.044m²·℃/kW.

3. Power supply: 3phase380V, 50Hz; Standard Star-delta Starting.

4. In the scope of AHRI vapour compression cycle water-cooled chiller certification, the performance parameters of AHRI certificate can be obtained via manufacturer.

5. Low-Temperature Running: Chiller chilled water outlet temperature can reach the highest 4℃, the lowest - 8℃ low temperature running. In this condition, chiller need to adopt ethylene glycol solution as refrigerating medium, please contact the manufacturer to select the low temperature condition parameters. Low temperature chiller named after the standard chiller name with "Z".

■ Specifications

MODEL		ZUW240BT5Y	ZUW280BT5Y	ZUW300BT5Y	ZUW350BT5Y	ZUW400BT5Y
Cooling Capacity (50Hz/380V)	USRT	247.4	290.1	327.1	358.3	412.4
	kW	870	1020	1150	1260	1450
	kcal/h	748,200	877,200	989,000	1,083,600	1,247,000
Power Consumption	kW	158.2	174.4	196.6	212.8	248.7
COP		5.50	5.85	5.85	5.92	5.83
Casing/Color						
Chiller Water(50Hz)	m ³ /h	149.6	175.4	197.8	216.7	249.4
	l/min	2494	2924	3297	3612	4157
Condenser Water(50Hz)	m ³ /h	187.1	219.3	247.3	270.9	311.8
	l/min	3118	3655	4121	4515	5196
Dimensions(L×W×H)	mm	3850×1400×1860		4140×1820×2230		
Compressor	Type	Semi-hermetically Sealed Single Screw Type				
	Model	ZHA9WSG2YE*2	ZHA23VH2YE*2	ZHA23VH2YE*2	ZHA23VH2YE*2	ZHA23VH2YE*2
	Starting Method	Star-delta Starting				
	Capacity Control	%	25-100% Continuous Capacity Control			
Condenser	Type	Shell				
	Quantity×Model	CF5530-B240×1	CF6536-B280×1	CF6536-B300×1	CF6536-B350×1	CF6536-B400×1
	Type	Flooded				
	Quantity×Model	WF6030-B240×1	WF6536-B280×1	WF6536-B300×1	WF6536-B350×1	WF6536-B400×1
Refrigerant	Refrigerant	R134a				
	NO. of Circuit	1				
	Control	Electronic Expansion Valve				
	Charge	kg	270	350	370	400
Electric Control System	MICRO TECH III Program Controller, LCD Display					
Safety Devices	Main Circuit Fuse, Phase Monitor, reverse-phase protection, High/Low Pressure Protector, Over-Current-Sensor(Comp.), Overheat Protector(Comp.), Freeze-up protector thermostat, Overheat Sensor for Discharge Gas, Chilled water interrupt latency, Safety Valve					
Pipe OD	Chilled Water Inlet/Outlet	Φ168	Φ219			
	Condenser Water Inlet/Outlet	Φ168	Φ219			
Insulation Material	NBR/PVC Polyethelene Foam					
Machine Weight	kg	5280	6350	6410	6800	6920
Operation Weight	kg	5630	6770	6850	7420	7610
Evaporator Water Volume	l	350	420	440	620	690
Standard Attachment	Operation Manual, Fuse, Warranty card					

1. Cooling capacity is based on the following conditions:

Chilled water outlet temperature: 7℃; Chilled water flow rate 0.172m³/(h·kW)

Condenser water inlet temperature: 30℃; Condenser water flow rate 0.215m³/(h·kW)

2. Evaporator side fouling factor 0.018m²·℃/kW; Condenser side fouling factor 0.044m²·℃/kW.

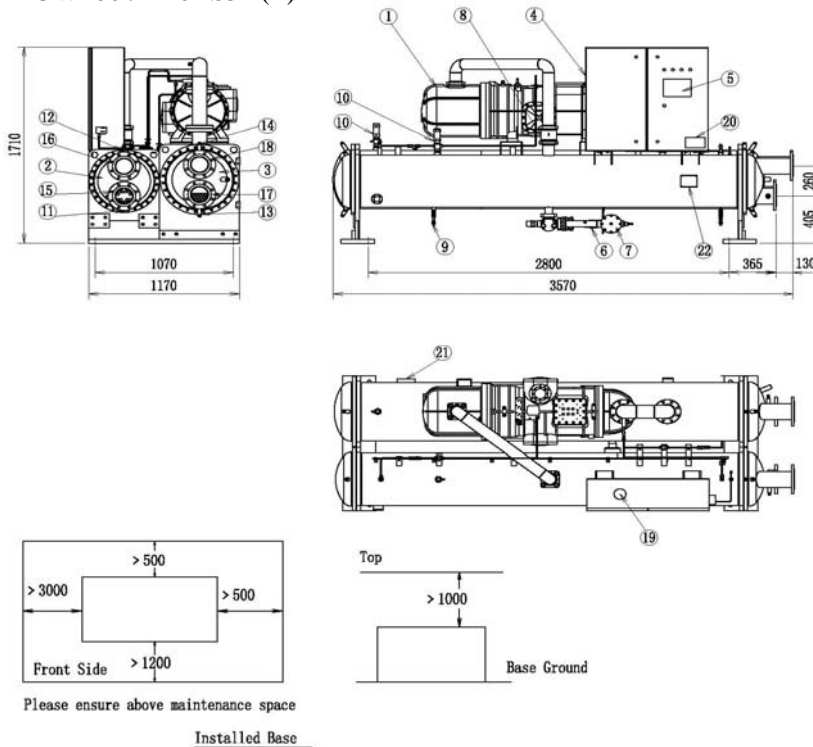
3. Power supply: 3phase380V, 50Hz; Standard Star-delta Starting.

4. In the scope of AHRI vapour compression cycle water-cooled chiller certification, the performance parameters of AHRI certificate can be obtained via manufacturer.

5. Low-Temperature Running: Chiller chilled water outlet temperature can reach the highest 4℃, the lowest - 8℃ low temperature running. In this condition, chiller need to adopt ethylene glycol solution as refrigerating medium, please contact the manufacturer to select the low temperature condition parameters. Low temperature chiller named after the standard chiller name with "Z".

■ Dimensions

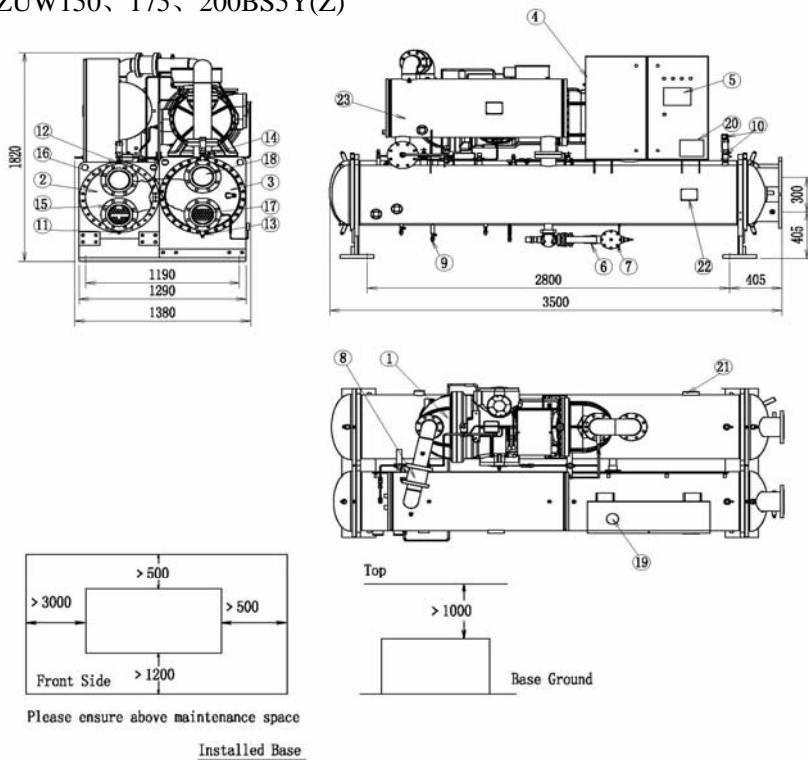
ZUW100、120BS5Y(Z)



NO.	NAME OF PARTS	REMARK
1	Compressor	
2	Condenser	
3	Evaporator	
4	Control Box	
5	LCD Control Panel	
6	Electronic Expansion Valve	
7	Dry Filter	
8	Reflex Valve	
9	Refrigerant Charge Valve	
10	Safety Valve	1 NPT
11	Condenser Water Drain Outlet	RC1/2
12	Condenser Water Air Outlet	RC1/2
13	Chilled Water Drain Outlet	RC1/2
14	Chilled Water Air Outlet	RC1/2
15	Condenser Water Inlet	140A
16	Condenser Water Outlet	140A
17	Chilled Water Inlet	140A
18	Chilled Water Outlet	140A
19	Power Supply Connector	
20	Chiller Name Plate	
21	Evaporator Name Plate	
22	Condenser Name Plate	

Daikin will not provide the connect pipe flange which is used for the condenser water and chilled water to connect the pipe (Refrigerant medium) Flange size is based on HG20592-97, PL-1.0RF.

ZUW150、175、200BS5Y(Z)

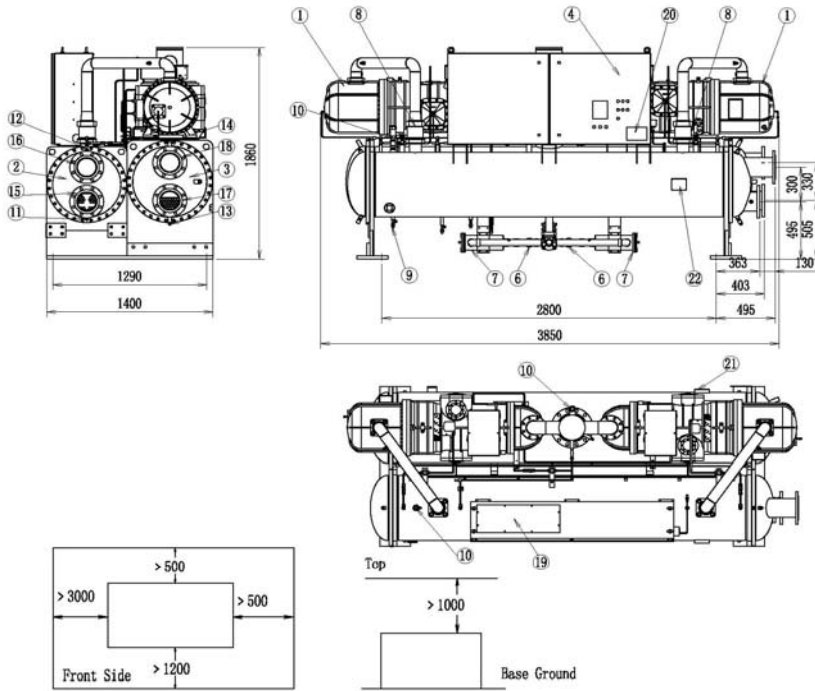


NO.	NAME OF PARTS	REMARK
1	Compressor	
2	Condenser	
3	Evaporator	
4	Control Box	
5	LCD Control Panel	
6	Electronic Expansion Valve	
7	Dry Filter	
8	Reflex Valve	
9	Refrigerant Charge Valve	
10	Safety Valve	1 NPT
11	Condenser Water Drain Outlet	RC1/2
12	Condenser Water Air Outlet	RC1/2
13	Chilled Water Drain Outlet	RC1/2
14	Chilled Water Air Outlet	RC1/2
15	Condenser Water Inlet	168A
16	Condenser Water Outlet	168A
17	Chilled Water Inlet	168A
18	Chilled Water Outlet	168A
19	Power Supply Connector	
20	Chiller Name Plate	
21	Evaporator Name Plate	
22	Condenser Name Plate	
23	Oil Separator	

Daikin will not provide the connect pipe flange which is used for the condenser water and chilled water to connect the pipe (Refrigerant medium) Flange size is based on HG20592-97, PL-1.0RF.

■ Dimensions

ZUW240BT5Y(Z)

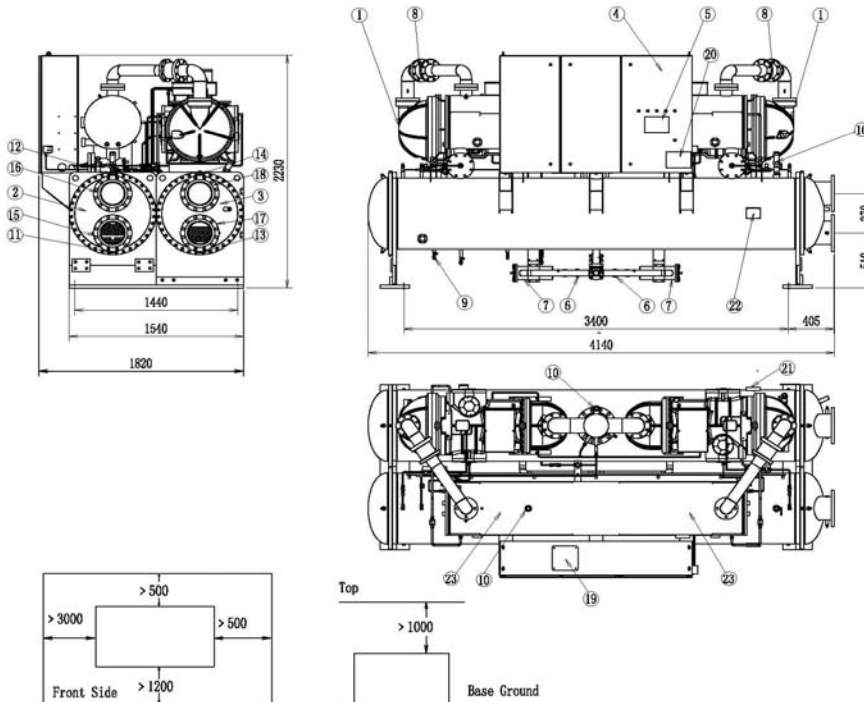


NO.	NAME OF PARTS	REMARK
1	Compressor	
2	Condenser	
3	Evaporator	
4	Control Box	
5	LCD Control Panel	
6	Electronic Expansion Valve	
7	Dry Filter	
8	Reflex Valve	
9	Refrigerant Charge Valve	
10	Safety Valve	1 NPT
11	Condenser Water Drain Outlet	RC1/2
12	Condenser Water Air Outlet	RC1/2
13	Chilled Water Drain Outlet	RC1/2
14	Chilled Water Air Outlet	RC1/2
15	Condenser Water Inlet	168A
16	Condenser Water Outlet	168A
17	Chilled Water Inlet	168A
18	Chilled Water Outlet	168A
19	Power Supply Connector	
20	Chiller Name Plate	
21	Evaporator Name Plate	
22	Condenser Name Plate	

Daikin will not provide the connect pipe flange which is used for the condenser water and chilled water to connect the pipe (Refrigerant medium) Flange size is based on HG20592-97, PL-1.0RF.

Please ensure above maintenance space
Installed Base

ZUW280、300、350、400BT5Y(Z)

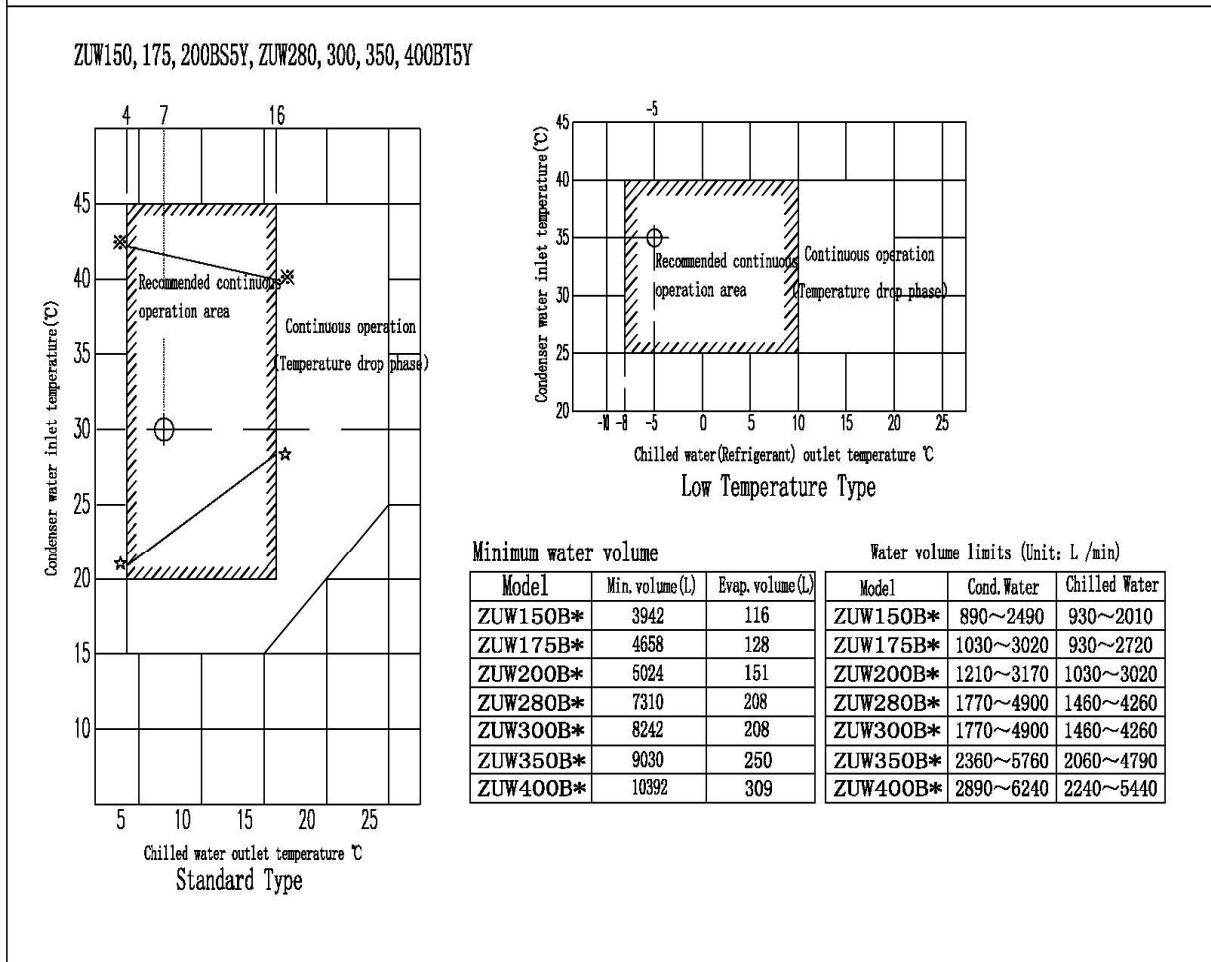
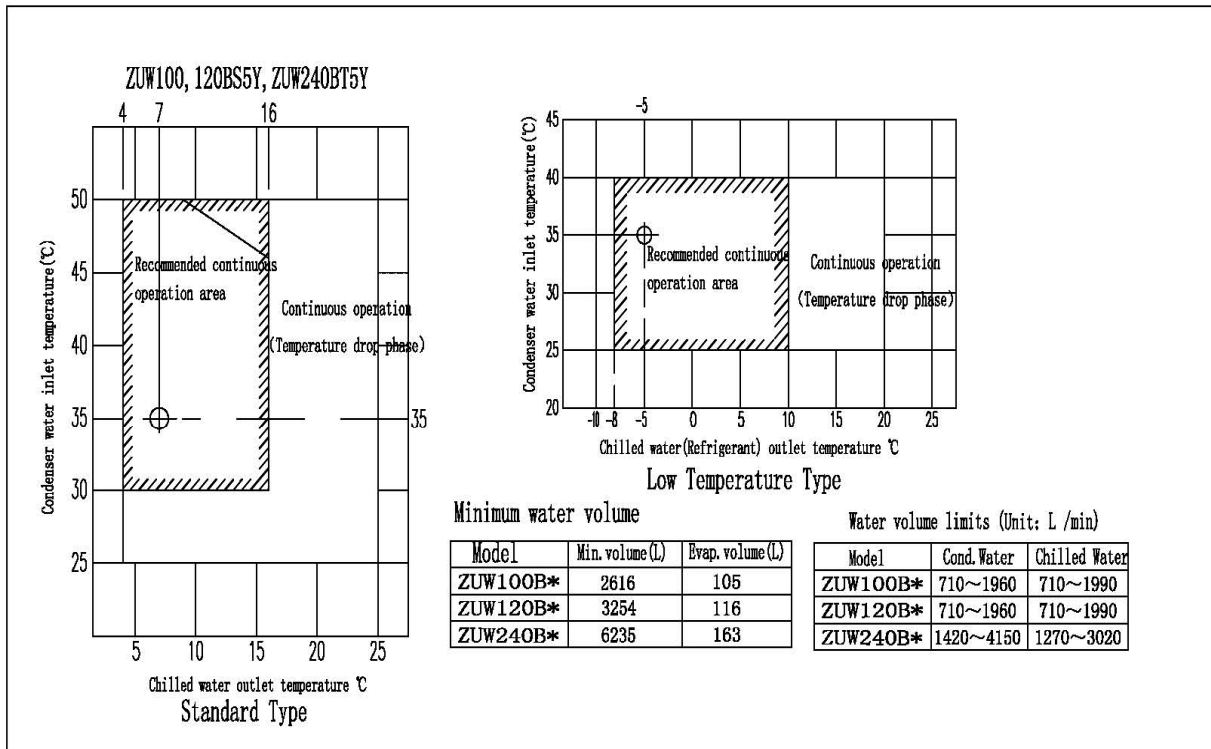


NO.	NAME OF PARTS	REMARK
1	Compressor	
2	Condenser	
3	Evaporator	
4	Control Box	
5	LCD Control Panel	
6	Electronic Expansion Valve	
7	Dry Filter	
8	Reflex Valve	
9	Refrigerant Charge Valve	
10	Safety Valve	DN32
11	Condenser Water Drain Outlet	RC1/2
12	Condenser Water Air Outlet	RC1/2
13	Chilled Water Drain Outlet	RC1/2
14	Chilled Water Air Outlet	RC1/2
15	Condenser Water Inlet	219A
16	Condenser Water Outlet	219A
17	Chilled Water Inlet	219A
18	Chilled Water Outlet	219A
19	Power Supply Connector	
20	Chiller Name Plate	
21	Evaporator Name Plate	
22	Condenser Name Plate	
23	Oil Separator	

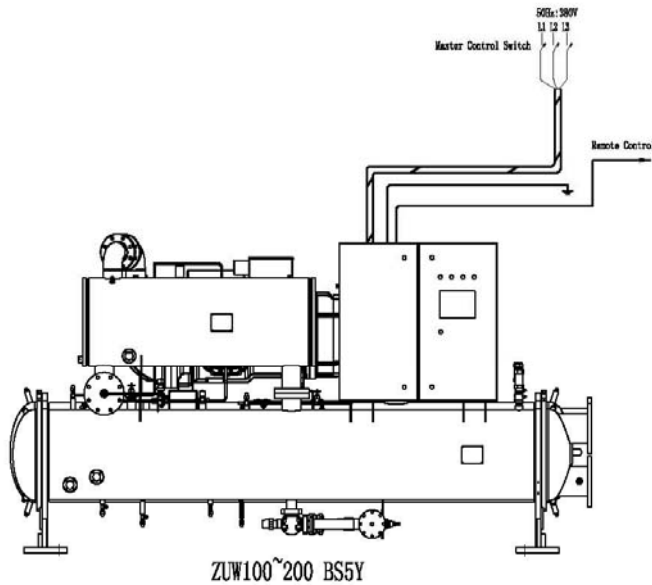
Daikin will not provide the connect pipe flange which is used for the condenser water and chilled water to connect the pipe (Refrigerant medium) Flange size is based on HG20592-97, PL-1.0RF.

Please ensure above maintenance space
Installed Base

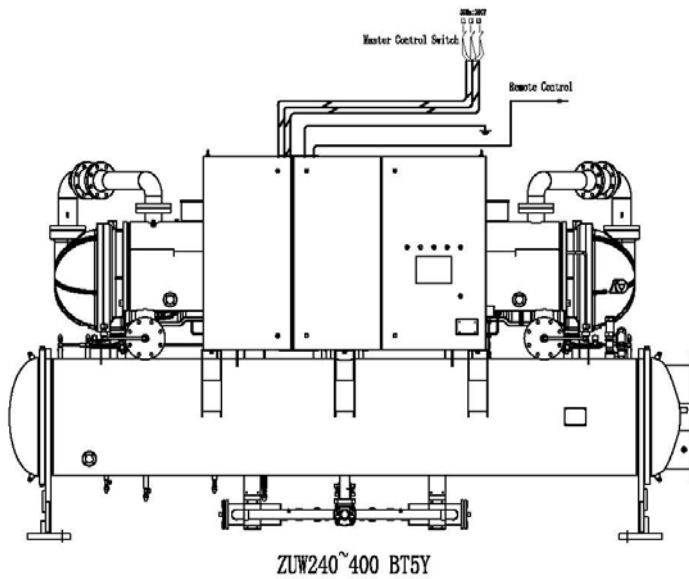
■ Operation Limits



External Power Supply Wiring Diagram



机组型号	电缆规格 (mm ²)
ZUW100BS5Y	3×70
ZUW120BS5Y	3×95
ZUW150BS5Y	3×150
ZUW175BS5Y	3×150
ZUW200BS5Y	3×185

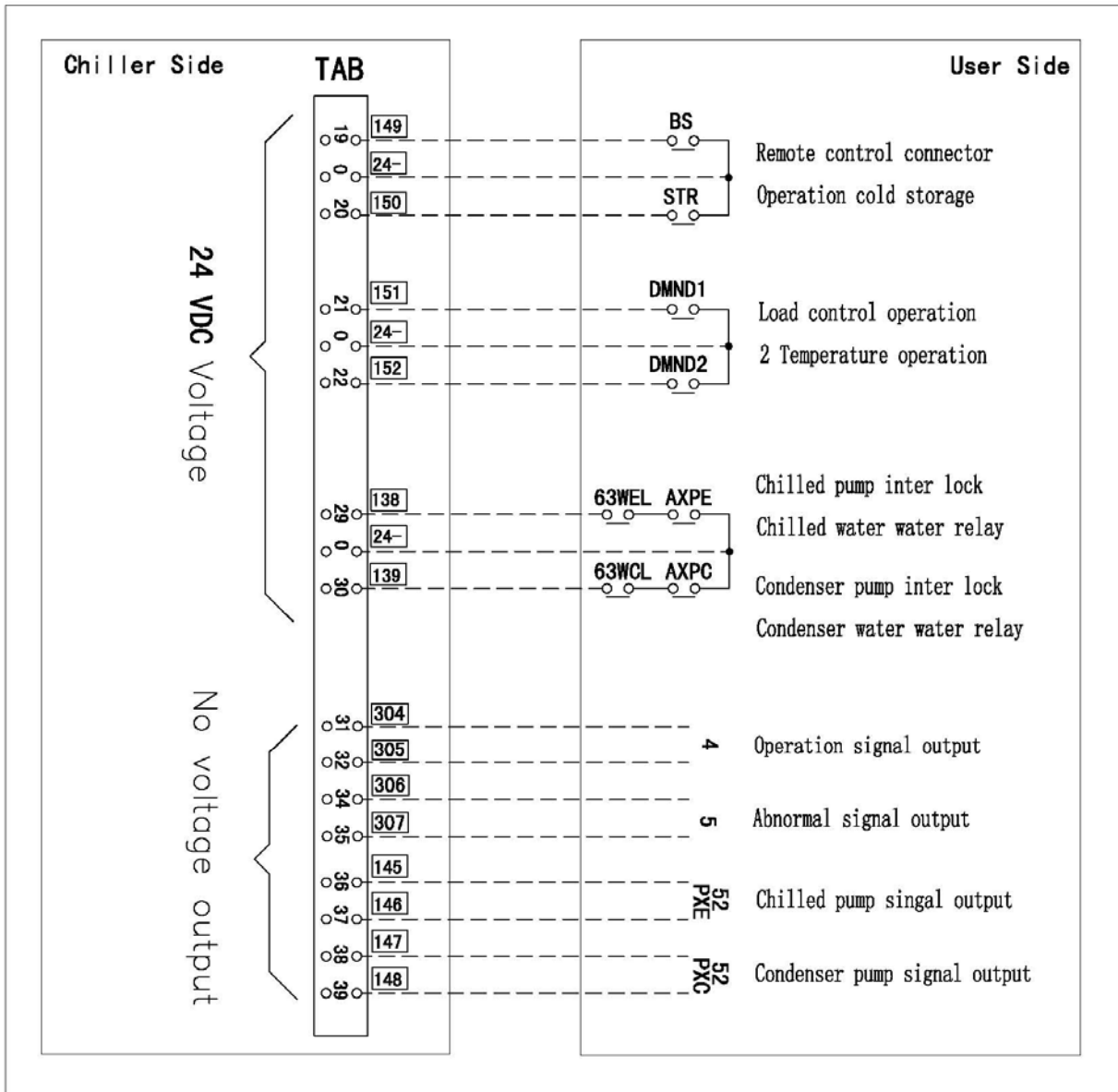


Model	Cable Specification(mm ²)
ZUW240BT5Y	(3×96)×2
ZUW280BT5Y	(3×150)×2
ZUW300BT5Y	(3×150)×2
ZUW350BT5Y	(3×150)×2
ZUW400BT5Y	(3×185)×2

NOTE:

1. Above cable parameters are only for reference. As concern about the cable setting method, cable selection and the other factors, when the user field wiring, user should according to project actual situation and related electrical standard to count .
2. When the volatile of the distribution voltage is large ($> \pm 2$), user should select the suitable cable specification.

Internal Control Wiring Diagram



■ Foundation

The diagrams illustrate the foundation requirements for the chiller. The top view shows a rectangular foundation with dimensions A through J. A drainage ditch is shown around the perimeter. The side view shows the foundation base and the drainage ditch relative to the ground level. The detailed drawing 'X' shows the assembly of the chiller foundation, vibration isolator, and concrete base, secured with a bolt and washer.

Chiller Model	A	B	C	D	E	F	G	H	J	Vibration Isolator	
										Size	Quantity
ZUW100/120B~	1070	1220	1670	500	2800	500	3800	300	300	200×60×t20	6
ZUW150/175/200B~	1190	1380	1790	500	2800	500	3800	300	300	200×100×t20	6
ZUW240B~	1290	1400	1890	900	2800	900	4600	300	300	200×100×t20	6
ZUW280/300/350/400B~	1440	1540	2340	600	3400	600	4600	450	450	240×100×t20	6

Note:

- Please use the foundation bolt for burying to base.
- Please keep the smoothness and evenness of foundation surface . (the levelness is under 2mm, based on 1000mm)
- Please set drainage ditch around the foundation.
- To protect the equipment, please carry out water-proofing on ground floor.
- Fixing bolt base and bolt accessory are not included in the equipment (Factory will not provide) Please prepare as an adequate measure to deal with possible tension caused by ground shake. The dimensions of fixing bolt base provides in the following chart are the reference values under the design condition of 0.6G horizontal and 0.3G vertical.
- Please take precautions against earthquakes according to installation situation. Vibration may exist in the fitting part, thereby produce noise from floor or wall. Even though, the standard equipment offers anti-vibration cushion spacer (accessory) as standard specification.
- When carry out standard vibration-proofing, please arrange anti-vibration cushion spacer around all fixing bolts as well as center of the foundation unit. (as above)
- Fix bolt : J stype , M24 should be buried deep 300 mm and it need 4. (User should prepare)

Warning

- Daikin Air-Conditioning(Shanghai)CO.,LTD Huizhou Factory’s products are manufactured for export to numerous countries throughout the world. Daikin Huizhou Factory does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
 - Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
 - Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
 - Read the User’s Manual carefully before using this product. The User’s Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.
- If you have any enquires, please contact your local importer, distributor or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the unit close to the sea shore, contact your local distributor.



About ISO 9001
 ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.



About ISO 14001
 ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Manufacturer

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HUIZHOU FACTORY
 Xinle Industrial Area, Maan Town, Huizhou City,
 Guangdong P.R.C., 516257, China