SIC-W

Water-cooled Water Chillers

Model: SIC-5W

Operation Instruction

SHINI plastics technologies

Contents

1. General Description

Please read through this operation manual before using and installation to avoid damage of the machine and personal injuries.

The SIC-W series of water-cooled water chillers use a single closed-loop design for pressurised refrigerant. All models are equipped with compressor and motor overload protection, phase shortage and reversal alarms, anti-freeze thermostat, pressure gauges, etc. They feature excellent performance and a long lifespan. The series of working flow is based on the basic principle of heat exchange. It is applicable to the industry that requires flow of precisely controlled chilled water, and considered as indispensable equipment for modern industry.

1.1 Main Features:

1) Cooling range 7 ~ 35°C.
2) Stainless iron made insulated water tank.
3) Equipped with anti - freeze thermostat.
4) R22 refrigerant used as standard and optional R407 for efficient cooling.
5) Refrigeration loop controlled by high and low pressure switches.
6) Compressor and pump overload relays.
7) Italian made temperature controller maintains an accuracy of 1°C.
8) Compact design, easy to operate and maintain.
9) Low pressure pumps are standard configurations，while middle or high pressure pumps are optionally available.
10) Level meter of water tank is available as an option.
11) All adopt imported compressors.
12) SIC - W adopts tube - in - shell condenser design for quick heat transfer and excellent heat radiation.
13) Upon request, it can be built to comply with worldwide electrical safety standards (For example : CE, UL, CSA, JIS etc.).

All service work should be carried out by a person with technical training or corresponding professional experience. The manual contains instructions for both handling and servicing. Chapter 7, which contains service instructions intended for service engineers. Other chapters contain instructions for the daily operator.

Any modifications of the machine must be approved by SHINI in order to avoid personal injury and damage to machine. We shall not be liable for any damage caused by unauthorized change of the machine.

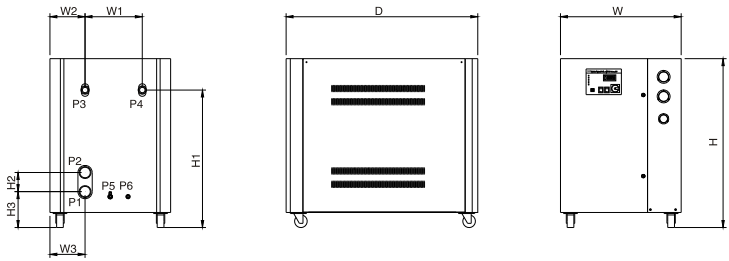
Our company provides excellent after-sales service. Should you have any problem during using the machine, please contact the company or the local vendor.

Headquarter and Taipei factory：
Tel: (886) 2 2680 9119

Hot service line on Mainland：
Tel: 800 - 999 3222

1.2 Technical Specifications

1.2.1 Outer Dimensions



Model	H (mm)	H1 (mm)	H2 (mm)	H3 (mm)	W (mm)	W1 (mm)	W2 (mm)	W3 (mm)	D (mm)	P1 Cooling Water Inlet	P2 Cooling Water Outlet	P3 Process Water Inlet	P4 Process Water Outlet	P5 Water Tank Outlet Port	P6 Water Tank Overflow Port	Weight (kg)
SIC-3W	970	790	91	207	550	273	164	164	1080	1"	1"	1"	1"	1/2"	1/2"	230
SIC-5W	970	790	91	207	550	273	164	164	1080	1 1/2"	1 1/2"	1"	1"	1/2"	1/2"	290
SIC-8W	1050	910	140	225	830	370	230	230	1200	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1/2"	1/2"	400
SIC-10W	1050	910	140	225	830	370	230	230	1200	2"	2"	1 1/2"	1 1/2"	1/2"	1/2"	410
SIC-12.5W	1200	1078	140	308	865	459	202	162	1370	2"	2"	2"	2"	1/2"	1/2"	610
SIC-15W	1200	1078	140	308	865	459	202	162	1370	2 1/2"	2 1/2"	2"	2"	1/2"	1/2"	640
SIC-20W	1450	765	200	190	1055	300	295	205	2235	2 1/2"	2 1/2"	2"	2"	1/2"	1/2"	750
SIC-25W	1450	765	200	190	1055	300	295	205	2235	2 1/2"	2 1/2"	2"	2"	1/2"	1/2"	760
SIC-30W	1450	765	200	200	1055	300	215	205	2235	3"	3"	2 1/2"	2 1/2"	1/2"	1/2"	800
SIC-40W	1760	910	140	190	1100	370	229	230	2870	3"	3"	2 1/2"	2 1/2"	1"	1"	1200
SIC-45W	1760	1078	140	190	1100	459	202	162	2870	3"	3"	2 1/2"	2 1/2"	1"	1"	1450
SIC-50W	1760	170	120	190	1100	180	325	505	3285	3"	3"	2 1/2"	2 1/2"	1"	1"	1750

1.2.2 SIC-W Series Specification List

Item \ Parameter \ Model				SIC-3W	SIC-5W	SIC-8W	SIC-10W	SIC-12.5W	SIC-15W	SIC-20W	SIC-25W	SIC-30W	SIC-40W	SIC-45W	SIC-50W
(1) Refrigeration Capacity	kW	50Hz		8	13.5	21.6	27	33.75	40.5	54	67.5	81	110.4	124.2	138
		60Hz		9	15	24	30	37.5	45	60	75	90	120	135	150
	kcal/hr	50Hz		6880	11607	18576	23220	29025	34830	46440	58050	69660	94944	106812	118680
		60Hz		77740	12900	20640	25800	32250	38700	51600	64500	77400	103200	116100	129000
Compressor	Type			Scroll (2)		Scroll									
	Power	kW	50Hz	2.77	4.65	7	9.35	12	14.2	18.7	24	28.4	37.35	42.6	48
			60Hz	3.32	5.6	8.5	11.5	14.7	17.6	23	29.4	35.2	46.7	52.8	58.8
		Hp		3	5	8	10	12.5	15	20	25	30	40	45	50
Refrigerant	Weight (kg)			1.5	2.5	3.8	5	7	8.5	10	14	17	20	25	34
	Control Mode			Thermostatic expansion valve											
	Type (3)			R22											
Evaporator	Type			Tube-in-shell style											
Condensor	Type			Tube-in-shell style											
	In/out Pipe			1"	1 1/2"		2"		2 1/2"			3"			
	Cooling Water Flow (L/Min)			56	65	90	100	130	160	220	270	330	480	500	600
Water Tank (L)				50		85		150		180	200	270	400	400	400
(4) Pump	Power (kw) (50/60Hz)			0.75 / 1.1 0.75 / 1.5		1.1 1.1 / 1.5		1.5 / 2.2 2.2		2.2 / 3 / 4 3		3 / 4 5.5		4 / 5.5 5.5	
	Pump Flow (L/Min)			50 / 83 / 67		80 / 100 / 89		130 / 150 / 133		200 / 300 / 300		300 / 300 / 300		533 / 366 / 367	
	Working Pressure (kgf/cm²)			2.0 / 2.6 / 3.8		2.0 / 2.6 / 3.5		2.0 / 3 / 4.2		2.5 / 3 / 4.2				2.7 / 3.4 4.3	
Total Power (kW)		50Hz		2.95	4.45	7.1	8.6	11.6	13.2	17.2	20	26.0	34.0	38	41.5
		60Hz		3.35	5.15	8.5	9.0	13.9	15.4	20	24	30.1	39.7	45.6	49.8
Pipe Coupling (inch)	Cooling Water Outlet			1 1/4" × 4		1 1/4" × 1		2" × 1				2 1/2" × 1		2 1/2" × 1	
	Cooling Water Inlet			1 1/4" × 4		1 1/4" × 1		2" × 1				2 1/2" × 1		2 1/2" × 1	
	Drainage Port Of Water Tank			1/ 2"									1"		
	Overflow Port Of Water Tank			1/ 2"									1"		
Protections	Compressor			Overload relay											
	Pump			Overload relay											
	Refrigerant Circuit			High and low pressure switch / anti-freezing switch											
	Cooling water Ciucuit			by-pass valve / Water level switch (Option)											
Power				3Φ, 230/400/460/575V, 50/60Hz											
Measures Exchange				1kW = 860kcal/hr 1RT = 3024kcal/hr 10000Btu/hr = 2520kcal/hr											

Note: 1) Refrigeration capacity is tested under the condition that cold water outlet temperature is at 12℃ and ambient temperature is at 30 ℃.

2) A piston type compressor is used with 3Φ, 230V power supply(SIC-3W ~ SIC-5W).

3) Environment - friendly R470C refrigerant is optional. (Model denotes "U", such as SIC - 5W - U).

4) This pump is used as standard either for domestic or Southeast Asia; medium (Model denotes "P", such as SIC - 5W - P) or high pressure pump (Model denotes "HP", such as SIC - 5W - HP) are optional for installation on customer's demands.

5) Demands on special voltage of power supply could be satisfied.

1.3 Safety Regulations

Operation should be carried out according to the safety regulations this manual to avoid damage of the machine and personal injuries. Abide by the following regulations during operation.

1.3.1 Safety Signs and Labels

Electrical installation should done by qualified electricians.
Main switch and control should be turned before service and maintenance.

Warning! High voltage!
This sign is attached to the cover of control box!

Warning! Be careful!
Pay more attentions at the places where this sign is attached!

Attention!
Drain the water inside when power off at the cold day to avoid freezing.

Attention!
No need for regular inspection because all the electrical parts in the control unit are fixed tightly!

1.3.2 Transportation and Storage of The Machine

Transportation

1) SIC-W series are packed in crates or plywood cases with wooden pallet at the bottom, suitable for quick positioning by fork lift.
2) After unpacked, castors equipped on the machine can be used for ease of movement.
3) Do not rotate the machine and avoid collision with other objects during transportation to prevent improper functioning.

4)The structure of the machine is well-balanced, although it should also be handled with care when lifting the machine for fear of falling down.
5) The machine and its attached parts can be kept at a temperature from -25℃ to +55℃ for long distance transportation and for a short distance, it can be transported with temperature under +70℃.

Storage

1) SIC-W series should be stored indoors with temperature kept from 5°C to 40°C and humidity below 80%.
2) Disconnect all power supply and turn off main switch and control switch.
3) Keep the whole machine, especially the electrical components away from water to avoid potential troubles caused by the water.
4) Plastic film should be used to protect the machine from dust and rains.

Working environment

The machine should be operated:

1) Indoors in a dry environment with max. temperature +45℃ and humidity no More than 80%.

Do not use the machine:

1) If it is with a damaged cord.
2) On a wet floor or when it is exposed to rain to avoid electrical shock.
3) If it has been dropped or damaged until it is checked or fixed by a qualified serviceman.
4) This equipment works normally in the environment with altitude within 3000m.
5) At least a clearance of 1m surrounding the equipment is required during operation. Keep this equipment away from flammable sources at least two meters.
6) Avoid vibration, magnetic disturbance at the operation area.

Rejected parts disposal

When the equipment has run out its life time and can not be used any more, unplug the power supply and dispose of it properly according to local code.

Fire hazard

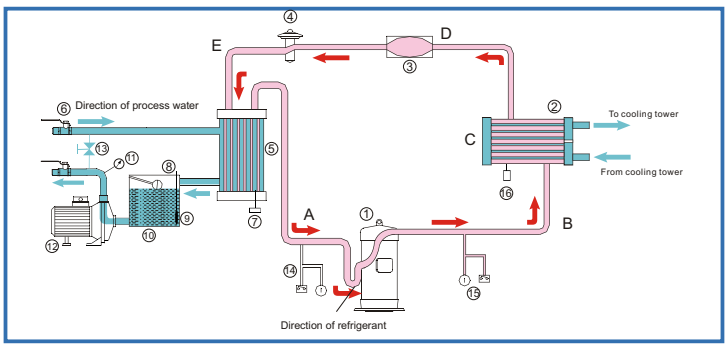
In case of fire, Co_2 dry powder fire extinguisher should be applied.

2. Structure Characteristics and Working Principle

2.1 Main Functions

The SIC-W water cooling water chiller is mainly made up of four components. They are compressor, condenser, thermostatic expansion valve and evaporator. The machine uses single stage vapor compression refrigeration system, and takes the advantage of the mechanism of transformation between gas and liquid status for absorbing and releasing heat by using of refrigerant to achieve the effectiveness of refrigeration.

2.2 Working Principle

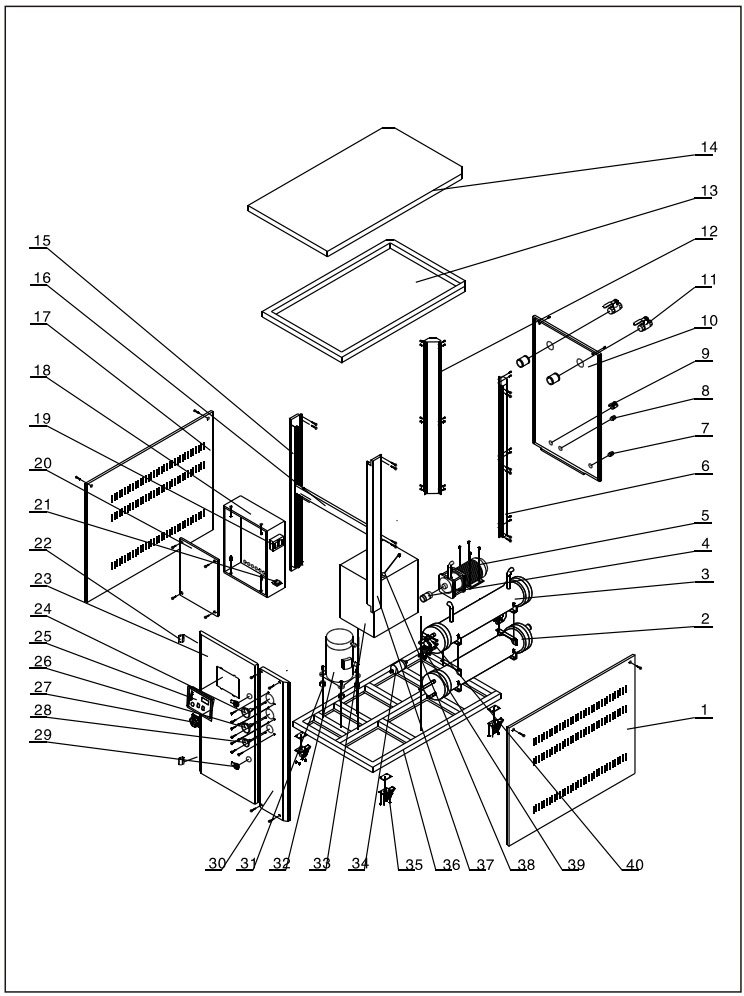


Item	Description	Item	Description
①	Compressor	⑨	Temp. sensor
②	Condenser	⑩	Water tank
③	Drying filter	⑪	Pump pressure meter
④	Expansion valve	⑫	Pump
⑤	Evaporator	⑬	By-pass valve
⑥	Ball valve	⑭	Low-pressure switch
⑦	Anti-freezing switch	⑮	Hi-pressure switch
⑧	Level sensor	⑯	Pressure release valve

After starting up, the compressor (1) starts to work, the refrigerant becomes into high pressure and high temperature gas under the compression effect of the compressor and circulates towards the direction of A-B; in the process of B-C-A the high pressure and high temperature gas of refrigerant passes through the condenser (2), changes the energy of heat with the cooling water, and transforms into liquid state from gaseous state, at the same time, the cooling water makes away with the energy of heat; in the process of D-E, the refrigerant of liquid state passes through the thermostatic expansion valve (4), the pressure reduces, partial refrigerant transforms into gaseous state from liquid state, at this time the refrigerant is in the state of two phases admixture of liquid state and gaseous state; in the process of E-A, the refrigerant passes through the evaporator (5), changes the energy of heat with heat transferring medium in the evaporator, cools down the refrigerated water to achieve the required temperature to meet the requirements; the refrigerant in gaseous state after passing through the evaporator returns to compressor, then one time of refrigerating cycle is completed.

Notice!
the electron temperature controller gauges of this series ice water machines have the function of time delay start up and our company sets the time as three minutes after which the compressor states up.

2.3 SIC-W Assembly Drawing



2.4 SIC-W Parts List

No .	Name	No. of the material		
		SIC-3W-P	SIC-5W-P	SIC-8W-P
1	The right board	–	–	–
2	The condenser	YW86003000000	YW86005000000	YW86008000000
3	The evaporator	YW87003000000	YW87005000000	YW87008000000
4	The rubber pipe	YR60320500000	YR60320500000	YR60420300000
5	The pump*	YM21015800100	YM21015800100	YM21401600100
6	The back right upright column	–	–	–
7	The water supply	–	–	–
8	The direct connection	YW51001200000	YW51001200000	YW51001200000
9	The 1/2'' ball valve	YW50010200100	YW50010200100	YW50010200100
10	The back board	–	–	–
11	1" ball valve	YW50010200100	YW50010200100	YW50015000000
12	The back left upright column	–	–	–
13	The upper frame	–	–	–
14	The cover plate	–	–	–
15	The front left upright column	–	–	–
16	The cross spreader of the electric control box	–	–	–
17	The left board	–	–	–
18	The electric control box	BH51000300350	BH51000500650	BH51000800550
19	The high and low pressure controller	YE90083000100	YE90083000100	YE90083000100
20	The bottom plate of the controller	–	–	–

No .	Name	No. of the material		
		SIC-3W-P	SIC-5W-P	SIC-8W-P
21	The freeze protection switch	YW85071100000	YW85071100000	YW85071100000
22	The hinge	YW06203100400	YW06203100400	YW06203100200
23	The door sheet	-	-	-
24	The high pressure gauge	YW85603500000	-	YW85603500000
25	The control panel	YR01004400000	YR01004400000	YR01004400000
26	The low pressure gauge	YW85601500000	YW85601500000	YW85601500000
27	The main power supply switch	YE10200300000	YE10200300000	YE10210300000
28	The pump pressure gauge	YW85001000100	YW85001000100	YW85001000100
29	The door lock	YW00000000100	YW00000000100	YW00000000100
30	The dash board fixed plate	-	-	-
31	The compressor anti hunting pillar	-	-	-
32	The compressor	YM70338000000	YM70534600000	YM70083800000
33	The water tank	-	-	-
34	The dry filter	YW85005300000	YW85016400000	YW85016500000
35	The castor	YW03000300200 YW03000300000	YW03000300200 YW03000300000	YW03000300200 YW03000300000
36	The bottom frame	-	-	-
37	The front right upright column	-	-	-
38	The ball float	YW59010200000	YW59010200000	YW59010200000
39	The heat expansion valve	YW85000300100	YW85000500100	YW85000800000
40	The liquid filling thimble valve	YW85010400100	YW85010400100	YW85010400100

* means possible broken parts. ** means easy broken part. and spare backup is suggested.

No .	Name	No. of the material		
		SIC-10W-P	SIC-12.5W-P	SIC-15W-P
1	The right board	-	-	-
2	The condenser	YW86010000100	YW86012500100	YW86015000200
3	The evaporator	YW87010000000	YW87012500000	YW87015000000
4	The rubber pipe	YR60420300000	YR60420300000	YR60420300000
5	The pump*	YM21401600100	YM21017000100	YM21017000100
6	The back right upright column	-	-	-
7	The water supply	-	-	-
8	The direct connection	YW51001200000	YW51001200000	YW51001200000
9	The 1/2" ball valve	YW50010200100	YW50010200100	YW50010200100
10	The back board	-	-	-
11	The 1" ball valve	YW50010200100	YW50010200100	YW50010200100
12	The back left upright column	-	-	-
13	The upper frame	-	-	-
14	The cover plate	-	-	-
15	The front left upright column	-	-	-
16	The cross spreader of the electric control box	-	-	-
17	The left board	-	-	-
18	The electric control box	BH51001000450	BH51120500250	BH51001500350
19	The high and low pressure controller	YE90083000100	YE90083000100	YE90083000100
20	The bottom plate of the controller	-	-	-

No	Name	No. of the material		
		SIC-10W-P	SIC-12.5W-P	SIC-15W-P
21	The freeze protection switch	YW85071100000	YW85071100000	YW85071100000
22	The hinge	YW06203100400	YW06203100400	YW06203100400
23	The door sheet	-	-	-
24	The high pressure gauge	YW85603500000	YW85603500000	-
25	The control panel	YR01004400000	YR01004400000	YR01004400000
26	The low pressure gauge	YW85601500000	YW85601500000	YW85601500000
27	The main power supply switch	YE10220300000	YE10220300000	YE10200300000
28	The pump pressure gauge	YW85001000100	YW85001000100	YW85001000100
29	The door lock	YW00000000100	YW00000000100	YW00000000100
30	The dash board fixed plate	-	-	-
31	The compressor anti hunting pillar	-	-	-
32	The compressor	YM70103800000	YM70125300000	YM70154400000
33	The water tank	-	-	-
34	The dry filter	YW85016500000	YW85030500000	YW85030700000
35	The castor	YW03000300200 YW03000300000	YW03000400000 YW03000400200	YW03000400000 YW03000400200
36	The bottom frame	-	-	-
37	The front right upright column	-	-	-
38	The ball float	YW59010200000	YW59010200000	YW59010200000
39	The heat expansion valve	YW85001000200	YW85001200000	YW85030500000
40	The liquid filling thimble valve	YW85010400100	YW85010400100	YW85010400100

* means possible broken parts. ** means easy broken part. and spare backup is suggested.

No	Name	No. of the material		
		SIC-20W-P	SIC-25W-P	SIC-30W-P
1	The right board	–	–	–
2	The condenser	YW86020000000	YW86025000000	YW86030000100
3	The evaporator	YW87020000000	YW87025000000	YW87030000000
4	The rubber pipe	YR60480500000	YR60480500000	YR60480500000
5	The pump*	YM21080000100	YM21080000100	YM21040000000
6	The back right upright column	–	–	–
7	The water supply	YW57212200000	YW57212200000	YW57212200000
8	The direct connection	–	–	–
9	The 1/2" ball valve	YW50010200100	YW50010200100	YW50010200100
10	The back board	–	–	–
11	The 1" ball valve	YW50010200100	YW50020000000	YW50020000000
12	The back left upright column	–	–	–
13	The upper frame	–	–	–
14	The cover plate	–	–	–
15	The front left upright column	–	–	–
16	The cross spreader of the electric control box	–	–	–
17	The left board	–	–	–
18	The electric control box	BH51002000250	BH51002500250	BH51003000250
19	The high and low pressure controller	YE90083000100	YE90083000100	YE90083000100
20	The bottom plate of the controller	BH51003000250	BH51003000250	BH51003000250

No	Name	No. of the material		
		SIC-20W-P	SIC-25W-P	SIC-30W-P
21	The freeze protection switch	YW85071100000	YW85071100000	YW85071100000
22	The hinge	YW06203100400	YW06203100400	YW06203100400
23	The door sheet	-	-	-
24	The high pressure gauge	YW85603500000	YW85603500000	YW85603500000
25	The control panel	YR01004400000	YR01004400000	YR01004400000
26	The low pressure gauge	YW85601500000	YW85601500000	YW85601500000
27	The main power supply switch	YE41106000000	YE41106000000	YE41109000000
28	The pump pressure gauge	YW85015000000	YW85015000000	YW85015000000
29	The door lock	YW00000000100	YW00000000100	YW00000000100
30	The dash board fixed plate	-	-	-
31	The compressor anti hunting pillar	-	-	-
32	The compressor	YM70103800000	YM70125300000	YM70154400000
33	The water tank	-	-	-
34	The dry filter	YW85016500000	YW85030700000	YW85030700000
35	The castor	-	-	-
36	The bottom frame	-	-	-
37	The front right upright column	-	-	-
38	The ball float	YW59010200000	YW59010200000	YW59010200000
39	The heat expansion valve	YW85001000200	YW85001200000	-
40	The liquid filling thimble valve	YW85010400100	YW85010400100	YW85010400100

* means possible broken parts. ** means easy broken part. and spare backup is suggested.

No	Name	No. of the material		
		SIC-40W-P	SIC-45W-P	SIC-50W-P
1	The right board	–	–	–
2	The condenser	YW86040000000	YW86045000000	–
3	The evaporator	YW87040000000	YW87045000000	YW87050000000
4	The rubber pipe	YR60600300000	YR60600300000	YR60600300000
5	The pump	YM21040000000	YM21040000000	YM21322000000
6	The back right upright column	–	–	–
7	The water supply	YW53100000000	YW57150100000	YW57150100000
8	The direct connection	YW51000300000	YW51000300000	YW51000300000
9	The 1/2″ ball valve	YW50030800100	YW50030800100	YW50010000000
10	The back board	–	–	–
11	The 1″ ball valve	YW50025000000	YW50025000000	YW50030000000
12	The back left upright column	–	–	–
13	The upper frame	–	–	–
14	The cover plate	–	–	–
15	The front left upright column	–	–	–
16	The cross spreader of the electric control box	–	–	–
17	The left board	–	–	–
18	The electric control box	BH51004000250	BH51004500150	BH51005000150
19	The high and low pressure controller	YE90083000100	YE90083000100	YE90083000100
20	The bottom plate of the controller	–	–	–

No	Name	No. of the material		
		SIC-40W-P	SIC-45W-P	SIC-50W-P
21	The freeze protection switch	YW85071100000	YW85071100000	YW85071100000
22	The hinge	YW06203100400	YW06203100400	YW06203100400
23	The door sheet	–	–	–
24	The high pressure gauge	YW85603500000	YW85603500000	YW85603500000
25	The control panel	YR01004400000	YR01004400000	YR01004400000
26	The low pressure gauge	YW85601500000	YW85601500000	YW85601500000
27	The main power supply switch	YE41110000000	YE41161200000	YE41161200000
28	The pump pressure gauge	YW85001000100	YW85001000100	YW85001000100
29	The door lock	YW00000000100	YW00000000100	YW00000000100
30	The dash board fixed plate	–	–	–
31	The compressor anti hunting pillar	–	–	–
32	The compressor	YM70134400000 YM70154400000	YM70154400000	YM70124000000
33	The water tank	–	–	–
34	The dry filter	YW85030700000	YW85030700000	YW85030700000
35	The castor	–	–	–
36	The bottom frame	–	–	–
37	The front right upright column	–	–	–
38	The ball float	YW59010000000	YW59010000000	YW59010000000
39	The heat expansion valve	YW85001000200	–	YW85001200000
40	The liquid filling thimble valve	Yw85010400100	YW85010400100	YW85010400100

*Indicates latent wearing parts；**Indicates latent wearing parts and it's suggested to back them up.

2.5 The Major Parts and Their Functions

The compressor

1) What the heart of the whole system is to compress the low temperature & low pressure gaseity refrigerant into high temperature & high pressure gaseity refrigerant. as well as maintain this condition.
2) The compressors of our company are the two types of Scroll and Piston.
3) The power of the generic compressors is 25 to 30 percent of the ice water machine's refrigeration capacity.

The condenser

1) The condenser is the equipment which output heat and it can discharge the heat absorbed by the cooling agent in the evaporator and the heat converted by the compressor by consuming the power to the cooling medium.
2) The condensers of our company are the type of closed shell and tube condenser.

The dry filter

1) The functions of the dry filter are: clean the impurity in the cooling agent, absorb the free water content in the freon, and prevent the narrow section (especially the valve port of the heat expansion valve) of the pipe from forming ice jam.
2) The size of filter is selected usually according to the refrigerant flow.
3) The dry filter is installed in front of the heat expansion valve to maintain the strictness of the valve.

The heat expansion balve

1) The heat expansion valve is used to take the effect of throttle and pressure relief, and also adjust the flow quantity of the cooling agent going into the evaporator.
2) The heat expansion valve is usually installed in front of the evaporator.

The evaporator

1) The evaporator is the equipment which output the refrigerating capacity, in which the cooling agent absorb the heated of the cooled objects and gain the aim of refrigeration.
2) The evaporators of our company are the type of Tube-in-sheel style.

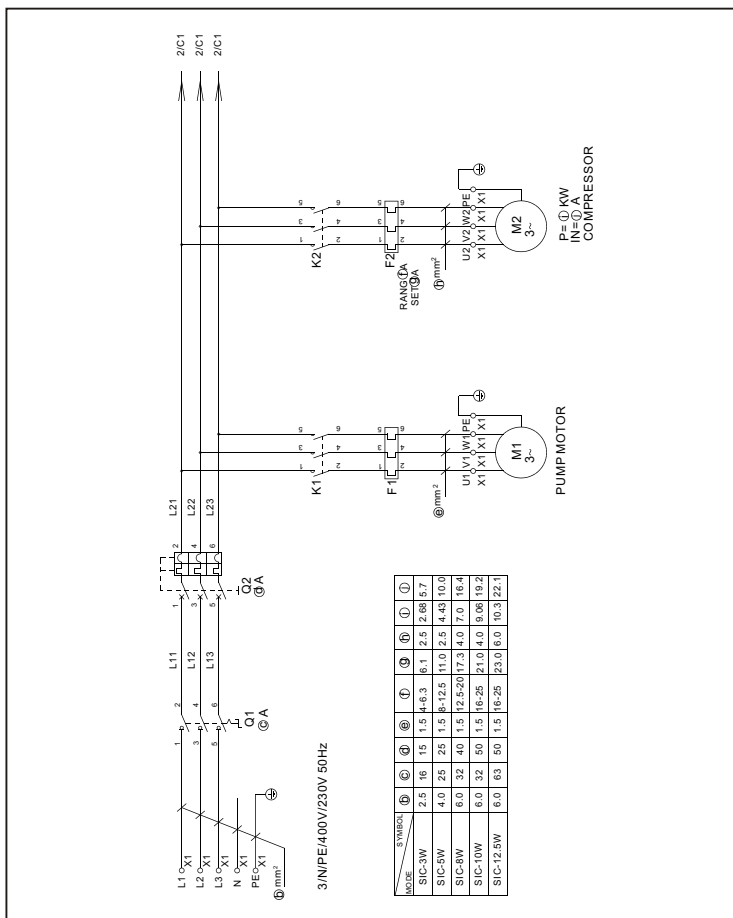
The high and low pressure controller

1) The high and low pressure controllers are used to control the working pressure of the compressor suction port and outlet port.
2) The pressure of the high pressure controller is ser to 25 bar, and pressure of the low pressure controller is set to 2 bar.
3) Give an alarm when the pressure of the compressor suction port is higher than 25 bar or the pressure of the compressor outlet port is lower than 2 bar.

2.6 Electrical Circuit

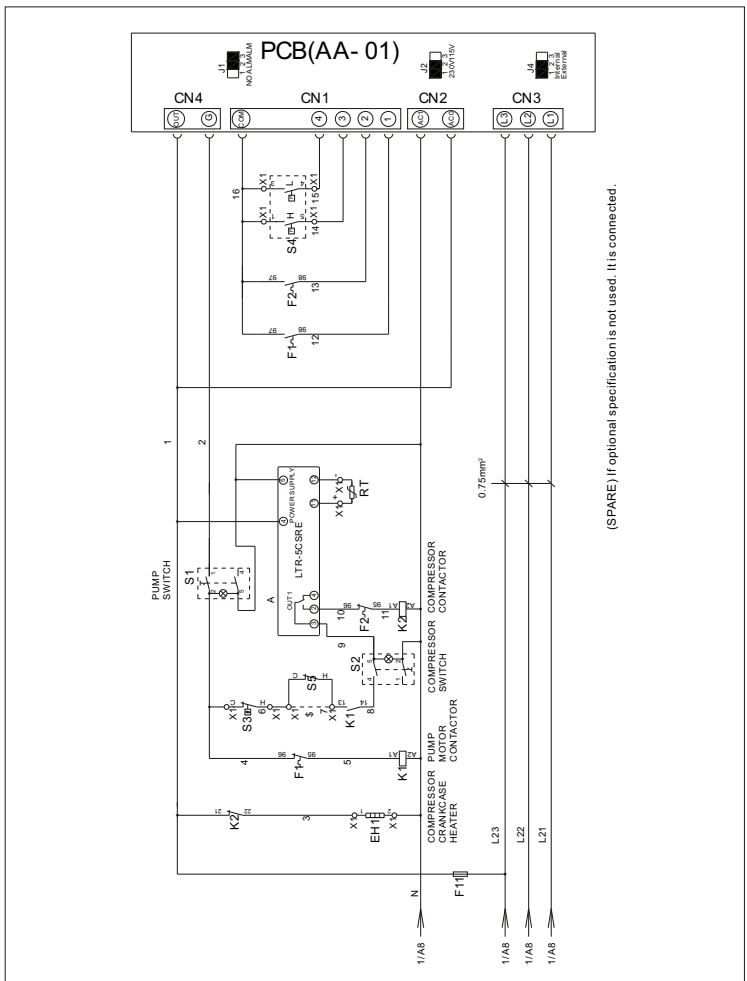
2.6.1 SIC-3W~12.5W

Main Electrical Circuit

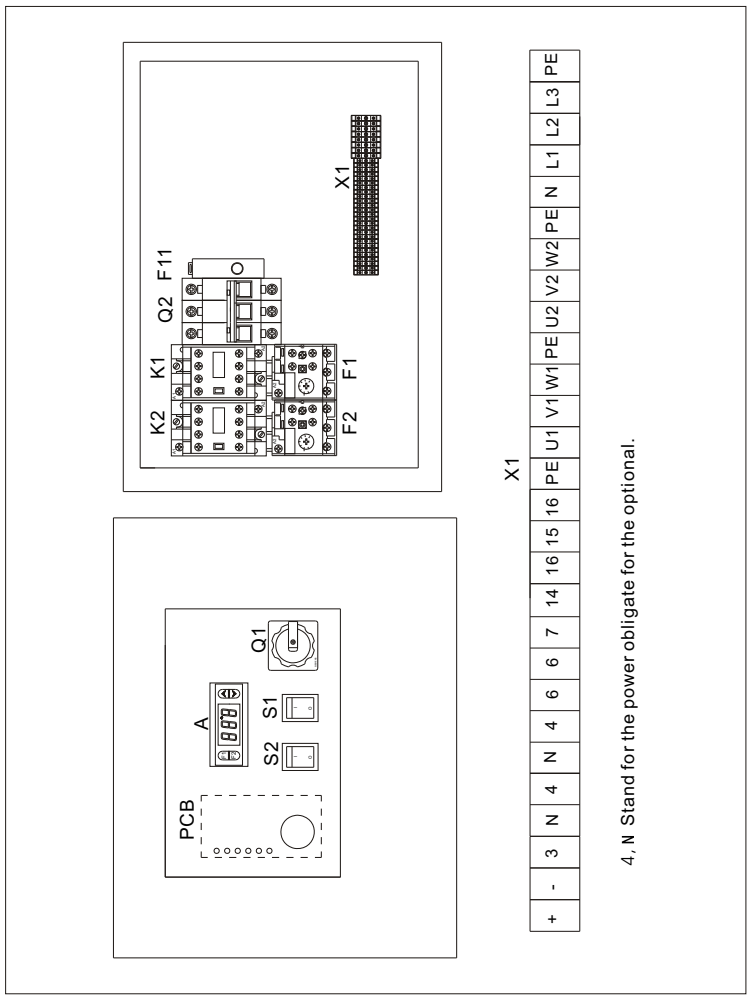


MODE \ SYMBOL	ⓐ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ	ⓗ	ⓘ	ⓙ
SIC-3W	2.5	16	15	1.5	4-6.3	6.1	2.5	2.68	5.7
SIC-5W	4.0	25	25	1.5	8-12.5	11.0	2.5	4.43	10.0
SIC-8W	6.0	32	40	1.5	12.5-20	17.3	4.0	7.0	16.4
SIC-10W	6.0	32	50	1.5	16-25	21.0	4.0	9.08	19.2
SIC-12.5W	6.0	63	50	1.5	16-25	23.0	6.0	10.3	22.1

Control Circuit



Electrical Components Layout



4, N Stand for the power obligate for the optional.