



SIC-W Water-cooled Water Chillers



SIC-5W

Operation Instruction

Ver.B

2013-04-26

Contents

1. General Description -----	1
2. Structure Characteristics and Working Principle -----	7
3. Installation and Debugging -----	59
4. Application and Operation -----	63
5. Trouble-shooting -----	70
6. Maintenance and Repair -----	72

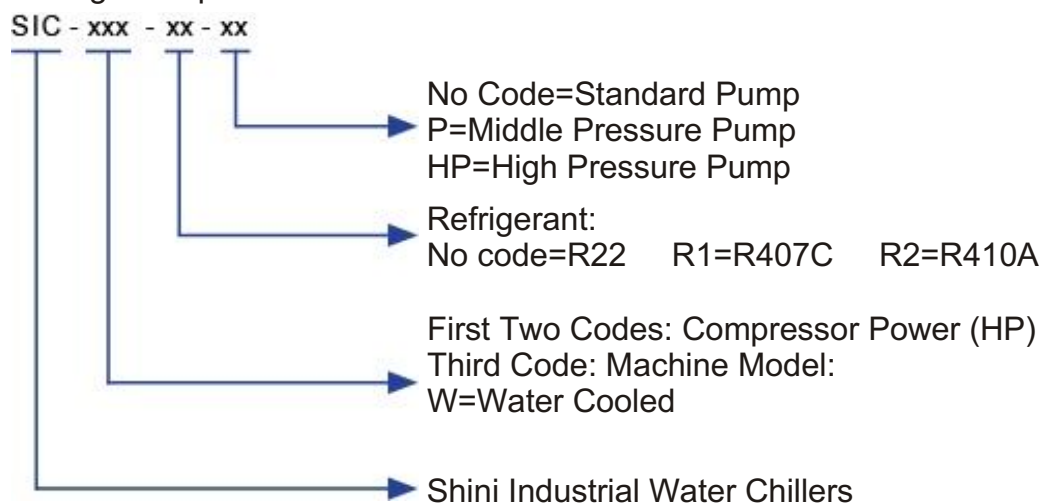
1. General Description



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 Coding Principle



Note:CE=CE Conformity

1.2 Main Features:

Standard configuration

- 1) Cooling range 7~35°C
- 2) Adopt stainless steel made insulated water tank and evaporator.
- 3) Adopt anti-freeze thermostate.
- 4) R22 refrigerant is used for efficient cooling.
- 5) Refrigeration loop controlled by high and low pressure controller.
- 6) Low pressure pumps are standard configurations.
- 7) Compressor and pump overload relays.
- 8) Adopt Italian made temperature controller to maintain an accuracy of $\pm 0.1^{\circ}\text{C}$.

General Description

9) Adopt imported compressor with low noise, high efficiency and long service life.

10) SIC-W adopts tube-in-shell condenser designed for quick heat transfer and excellent heat dissipation.

Accessory option

1) Medium and High pressure pumps are available to meet different requirements.

2) Liquid level indicators are available to detect whether the water level is normal.

3) Hot-air bypass valve can be opted for with an accuracy of $\pm 1^{\circ}\text{C}$

4) 1/2" four inlet and four outlet water flow regulators are available for SIC-3W~SIC-5W

5) Solenoid valves are optional to immediately cut the refrigerant after stop to prevent compressor freezing.

6) Add a refrigerant indicator to detect the quality and quantity of the refrigerant.

7) Flow switches are optional to detect the cooling water.

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

Shini Plastics Technologies (Dongguan), Inc:

Tel: (86) 769 8111 6600

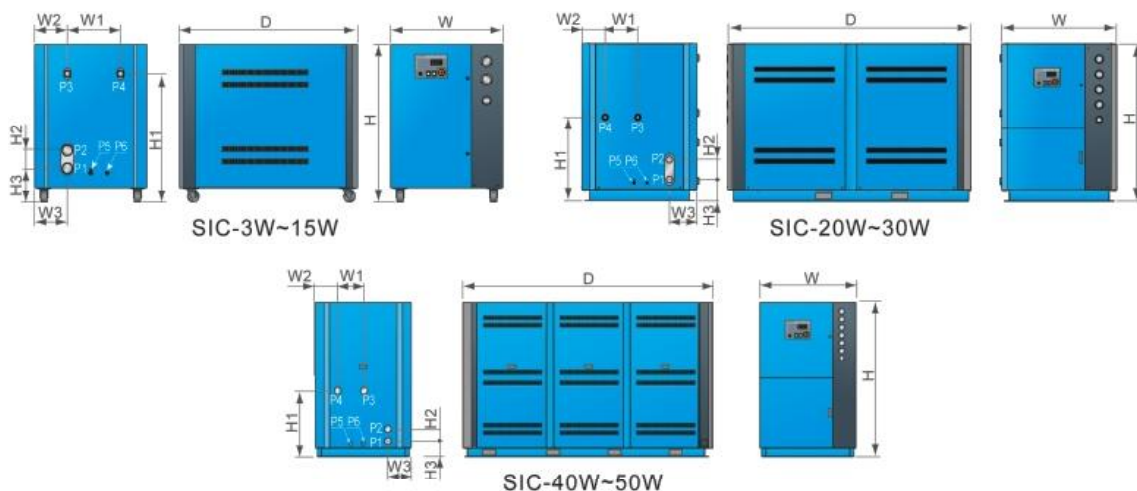
Shini Plastics Technologies India Pvt.Ltd.:

Tel: (91) 250 3021 166

General Description

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 (inch)	P2 Cooling Water Outlet (inch)	P3 Process Water Inlet (inch)	P4 Process Water Outlet (inch)	P5 Water Tank Outlet Port (inch)	P6 Water Tank Overflow Port (inch)	Weight (kg)
SIC-3W	970	790	91	207	550	273	164	164	1080	1	1	1	1	½	½	230
SIC-5W	970	790	91	207	550	273	164	164	1080	1½	1½	1	1	½	½	290
SIC-8W	1050	910	140	225	830	370	230	230	1200	1½	1½	1½	1½	½	½	400
SIC-10W	1050	910	140	225	830	370	230	230	1200	2	2	1½	1½	½	½	410
SIC-12.5W	1200	1078	140	308	865	459	202	162	1370	2	2	2	2	½	½	610
SIC-15W	1200	1078	140	308	865	459	202	162	1370	2½	2½	2	2	½	½	640
SIC-20W	1450	765	200	190	1055	300	295	205	2235	2½	2½	2	2	½	½	750
SIC-25W	1450	765	200	190	1055	300	295	205	2235	2½	2½	2	2	½	½	760
SIC-30W	1450	765	200	200	1055	300	215	205	2235	2½	2½	2½	2½	½	½	800
SIC-40W	1760	910	140	190	1100	370	229	230	2870	2½	2½	2½	2½	1	1	1200
SIC-45W	1760	1078	140	190	1100	459	202	162	2870	2½	2½	2½	2½	1	1	1450
SIC-50W	1760	170	120	190	1100	180	325	505	3285	2½	2½	2½	2½	1	1	1750

General Description

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	
Refrigeration Capacity	kW	50Hz	8.25	13.8	21.8	29.1	33	43	58.2	66	86	115.1	129	132
		60Hz	9.8	17	26.4	35.3	40.7	51.4	70.6	81.4	102.8	138.1	154.2	162.8
	kcal/hr	50Hz	7,095	11,868	18,748	25,026	28,380	36,980	50,052	56,760	73,960	98,986	110,940	113,520
		60Hz	8,428	14,620	22,704	30,358	35,002	44,204	60,716	70,004	88,408	118,766	132,616	140,008
Compressor	Power	kW	2.04	3.32	4.91	6.46	7.33	9.5	12.92	14.66	19	25.46	28.5	29.32
		60Hz	2.4	4.85	6.12	8.11	9.19	12.4	16.22	18.38	24.8	32.91	37.2	36.76
	Hp	3	5	8	10	12.5	15	20	25	30	40	45	50	
Refrigerant	Filling Volume (kg)	1.5	2.5	3.8	5	7	8.5	10	14	17	20	25	34	
	Control Mode	Thermostatic expansion valve												
	Type	R22												
Evaporator	Type	Tube-in-shell style												
	Type	Tube-in-shell style												
Condenser	In/out Pipe (inch)	1	1½	2	2½	2½	2½	2½	2½	2½	2½	2½	2½	
	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						
Pump	Power (kW)	(50Hz)	0.75 / 0.75 / 1.1	1.1	1.1 / 1.5 / 2.2	2.2 / 3 / 4	4 / 3 / 4	4 / 4 / 5.5						
		(60Hz)	0.75 / 0.75 / 1.5	1.1 / 1.1 / 1.5	2.2	3	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 (kg/cm ²)	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	2.79	4.07	6.01	7.56	8.43	10.6	15.12	16.86	23	29.46	32.5	33.32	
	60Hz	3.15	5.6	7.22	9.21	11.39	14.6	19.22	21.38	30.3	38.41	42.7	42.26	
Pipe Coupling (inch)	Cooling Water Outlet	1	1½	2	2½	2½	2½	2½	2½	2½	2½	2½	2½	
	Cooling Water Inlet	1	1½	2	2½	2½	2½	2½	2½	2½	2½	2½	2½	
	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 controller/Anti-freezing switch												
	Cooling water Circuit	By-pass valve/Water level switch (Option)												
Power		3Φ. 230 / 400 / 460 / 575VAC. 50 / 60Hz												
Measures Exchange		1 kW = 860 kcal/hr			1 RT = 3,024 kcal/hr			10,000 Btu/hr = 2,520 kcal/hr						

Note: 1) Refrigeration capacity is tested under conditions that process water flow is 0.172m³ (h.kW), process water outlet temp. is at 7°C, cooling water inlet temp. is at 30°C and cooling water flow is 0.215 m³ (h.kW).

2) Low pressure 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.

3) Pump power is included in total power.

4) 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 be 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 attention 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!

	Pump pressure gauge: display actual pressure of cold water system.
	High pressure gauge: display pressure in the high-pressure side of refrigerant system.
	Low pressure gauge: display pressure in the low-pressure side of refrigerant system.

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°C to $+55^{\circ}\text{C}$ for long distance transportation and for a short distance, it can be transported with temperature under $+70^{\circ}\text{C}$.

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°C 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, Co₂ dry powder fire extinguisher should be applied.

1.5 Exemption Clause

The following statements clarify the responsibilities and regulations born by any buyer or user who purchases products and accessories from Shini (including employees and agents).

Shini is exempted from liability for any costs, fees, claims and losses caused by reasons below:

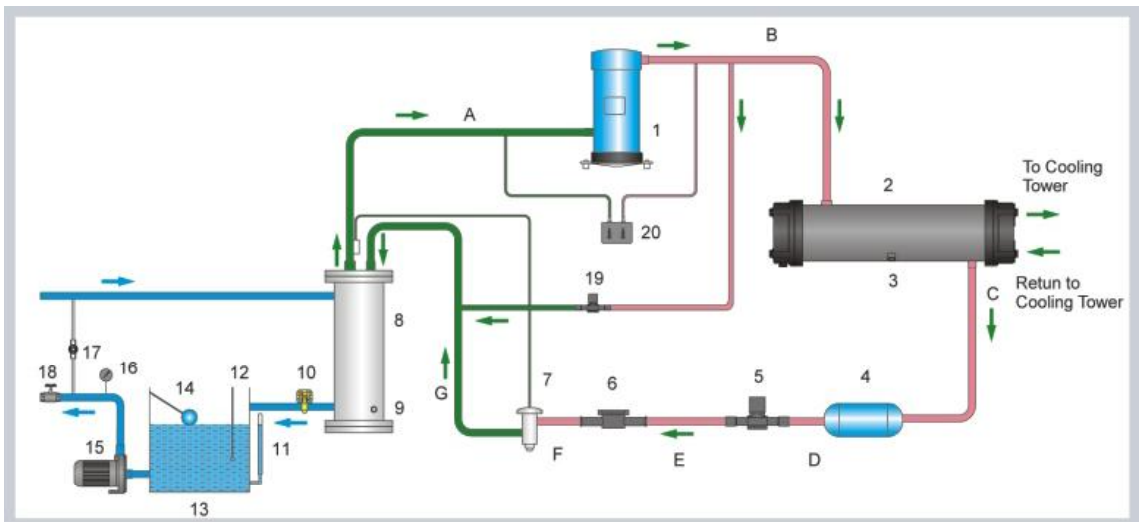
1. Any careless or man-made installations, operation and maintenances upon machines without referring to the Manual prior to machine using.
2. Any incidents beyond human reasonable controls, which include man-made vicious or deliberate damages or abnormal power, and machine faults caused by irresistible natural disasters including fire, flood, storm and earthquake.
3. Any operational actions that are not authorized by Shini upon machine, including adding or replacing accessories, dismantling, delivering or repairing.
4. Employing consumables or oil media that are not appointed by Shini.

2. Structure Characteristics and Working Principle

2.1 Main Functions

The SIC-W watercooling 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	11	Level sensor of water tank (Option)
2	Fan	12	Temp. Sensor
3	Fusible plug	13	Water tank
4	Drying filter	14	Ball valve
5	Solenoid valve (Option)	15	Pump
6	Level sensor (Option)	16	Water pressure meter
7	Expansion valve	17	By-pass valve
8	Evaporator	18	Sluice valve (For medium and high pressure pumps)
9	Anti-freezing switch	19	Hot-air bypass-valve (Option)
10	Flow switch (Option)	20	Pressure controller

When the SIC-W water-cooled water chiller starting up, compressor starts working. Refrigerant is compressed into high temperature and high pressure gas in the process from B to C, and then be cooled when passing through the condenser and changed into liquid. Heat is taken away by the cooling water. In the process from C to D to E and F, the liquid refrigerant is dried and filtered by the drying filter. After that, it will pass through the solenoid valve, refrigerant indicator and then reach the expansion valve. In the process from F to G, the high pressure liquid refrigerant will be throttled and depressurized by the heat expansion valve and the temperature will go down. In the process of G to A, chilled water absorbs the heat of process water in the evaporator and returns back to the compressor. This heat exchange process repeats until process water is cooled down to required temperature.

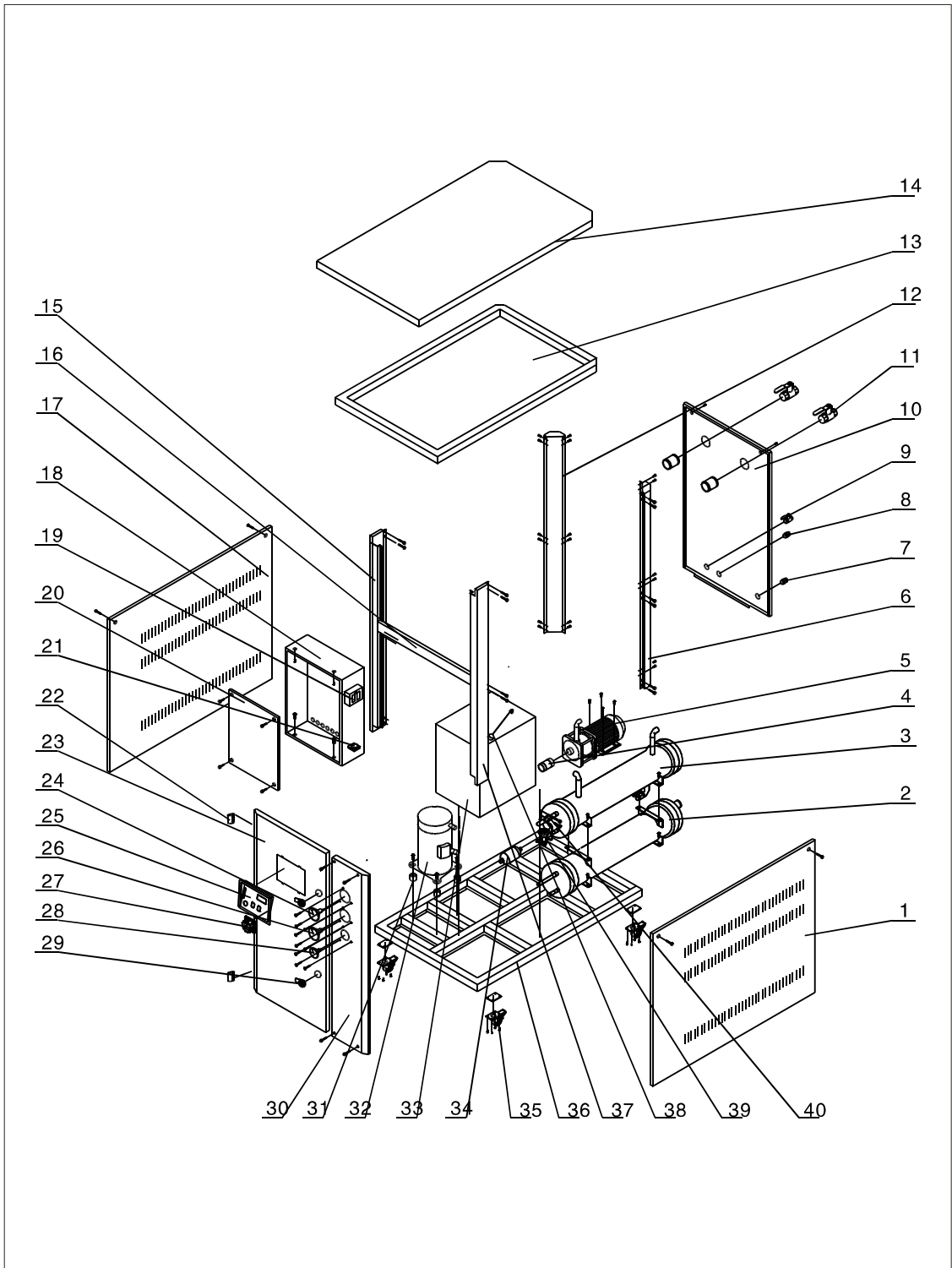
Hot-air bypass function: the compressor continues working when the process water is cooled down to the required temperature, then the hot-air bypass valve opens as the temperature drops to its set value. A part of the refrigerant from the compressor pass through the bypass valve and then reach the evaporator, balancing out part of the machine refrigerating capacity and then go back to the compressor without passing through the condenser. With the help of hot-air bypass valve, the system can stay in an balanced condition and meanwhile can keep the control accuracy at $\pm 1^{\circ}\text{C}$.



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	-	-	-

Structure Characteristics and Working Principle

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	YW85025380100	-	-
40	The liquid filling thimble valve	YW85010400100	YW85010400100	YW85010400100

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

Structure Characteristics and Working Principle

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	-	-	-

Structure Characteristics and Working Principle

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	YW85000800000	YW85001000200	YW85001200000
40	The liquid filling thimble valve	YW85010400100	YW85010400100	YW85010400100

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

Structure Characteristics and Working Principle

No	Name	No. of the material		
		SIC-20W-P	SIC-25W-P	SIC-30W-P
1	The right board	-	-	-
2	The condenser	YW8602000000	YW8602500000	YW86030000100
3	The evaporator	YW8702000000	YW8702500000	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

Structure Characteristics and Working Principle

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	Yw85000800000	YW85001000200	YW85001200000
40	The liquid filling thimble valve	YW85010400100	YW85010400100	YW85010400100

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

Structure Characteristics and Working Principle

No	Name	No. of the material		
		SIC-40W-P	SIC-45W-P	SIC-50W-P
1	The right board	-	-	-
2	The condenser	YW8604000000	YW8604500000	-
3	The evaporator	YW8704000000	YW8704500000	YW8705000000
4	The rubber pipe	YR60600300000	YR60600300000	YR60600300000
5	The pump	YM2104000000	YM2104000000	YM2132200000
6	The back right upright column	-	-	-
7	The water supply	YW5310000000	YW57150100000	YW57150100000
8	The direct connection	YW51000300000	YW51000300000	YW51000300000
9	The 1/2" ball valve	YW50030800100	YW50030800100	YW5001000000
10	The back board	-	-	-
11	The 1" ball valve	YW5002500000	YW5002500000	YW5003000000
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	-	-	-

Structure Characteristics and Working Principle

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	YW85001200000 YW85000800000	YW85001200000	YW85001000200
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

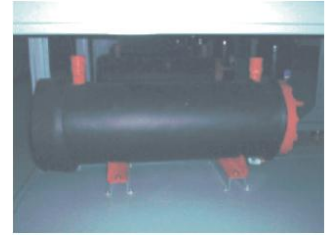
- 1) The heat expansion valve is used to take the effect of throttle and pressure relief, and also adjust the flow quantity of the cooling agent going into the evaporator.
- 2) The heat expansion valve is usually installed in front of the evaporator.



Structure Characteristics and Working Principle

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-shell 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 set 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.



Liquid gauge (option)

- 1) Observe if refrigerant is filled adequately.
- 2) Observe moisture content in system.

Tubing solenoid valve (option)
Cut off refrigerant supply circuit when downtime to avoid frozen evaporator.



Hot air bypass valve (option)

Allow refrigerant gas to flow when low temperature to avoid frequent compressor startup, also achieve precisely temperature control.



Flow switch (option)

Effectively avoid system break down as a result of cooling water circulation failure.

Liquid level mirror (option)

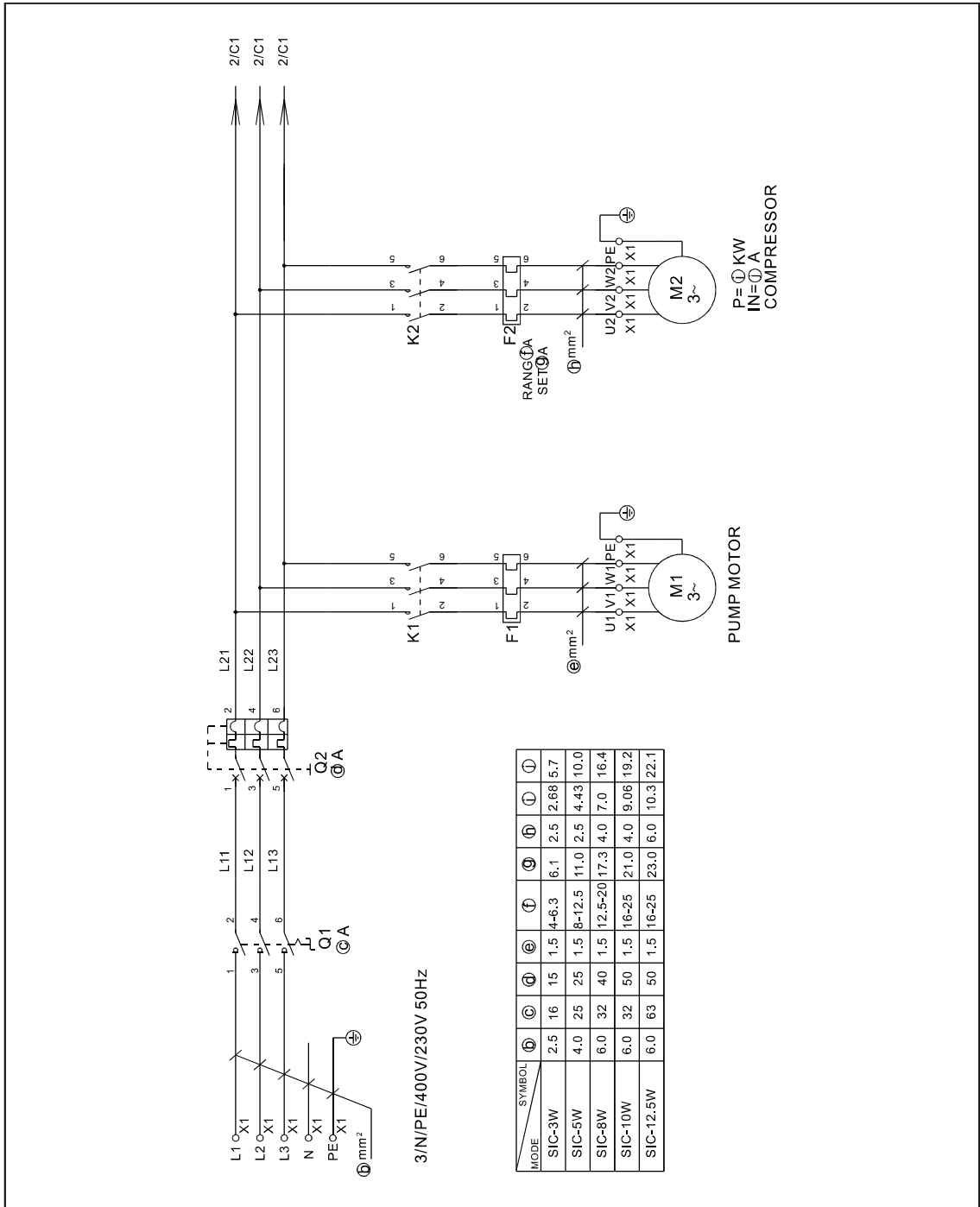
Observe if water level remains in a normal range.



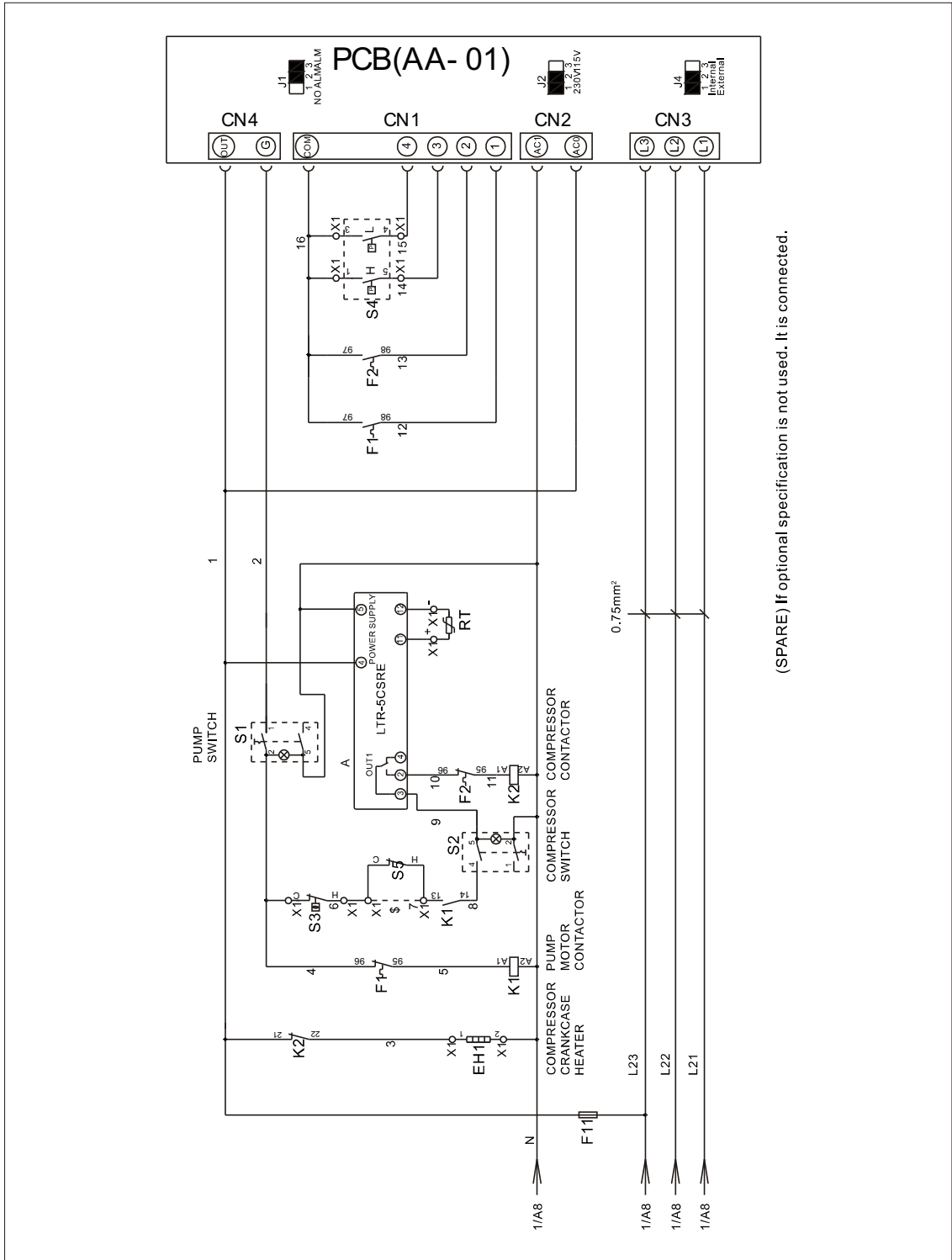
2.6 Electrical Circuit

2.6.1 SIC-3W~12.5W

Main Electrical Circuit

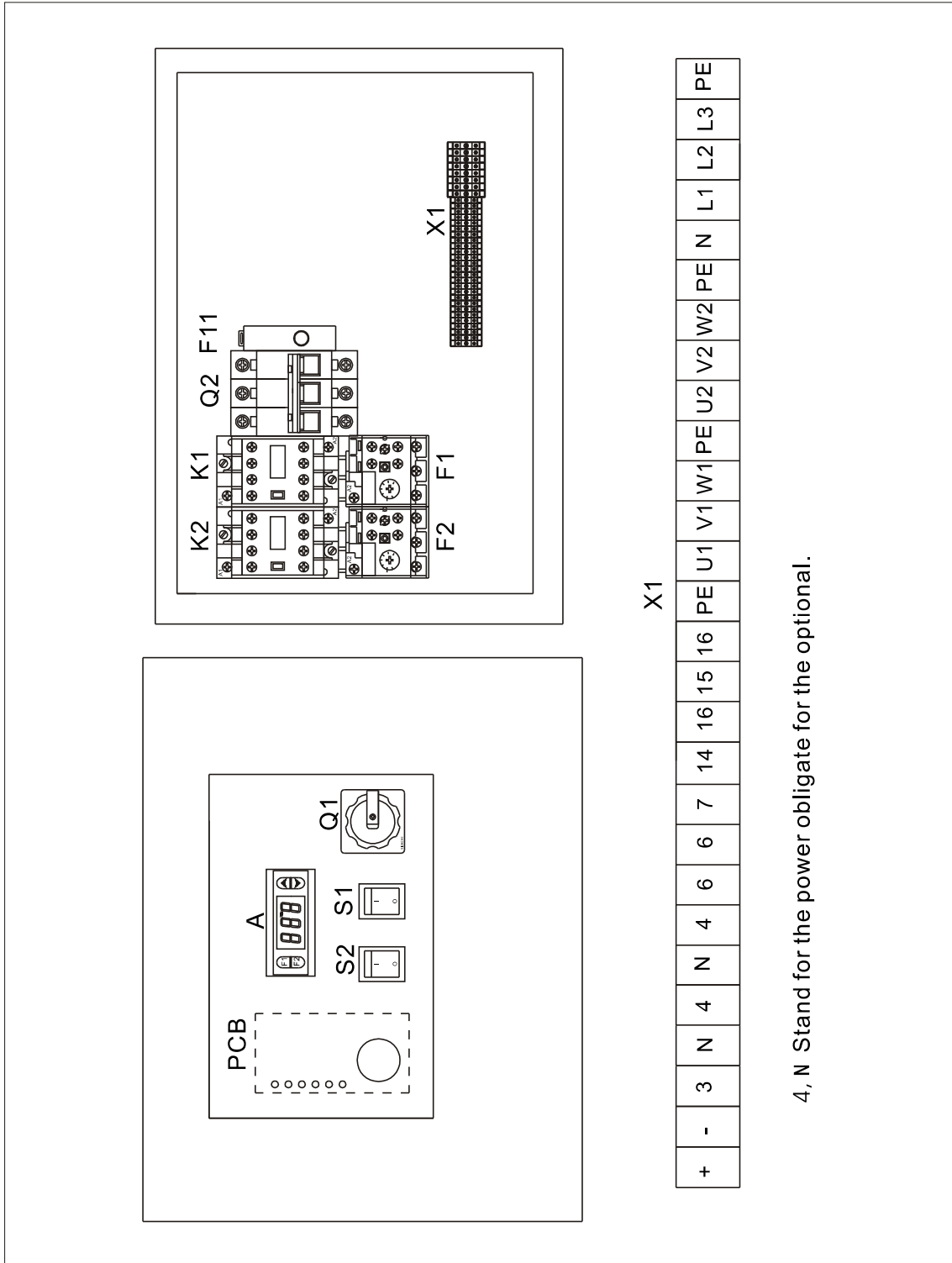


Control Circuit



(SPARE) If optional specification is not used. It is connected.

Electrical Components Layout



Structure Characteristics and Working Principle

SIC-3W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Main switch	16A	YE10200300000
2	Q2	Circuit breaker	15A	YE40601500000
3	K1	Contactor	230VAC 50/60Hz	YE00301000000
4	K2	Contactor	230VAC 50/60Hz	YE00300100000
5	A	Temperature controller	230VAC 50/60Hz 2W	YE85000500000
6	RT	Thermistor	----	-----
7	F1	Overload relay	----	YE01162500000
8	F2	Overload relay	4-6.3A	YE01046300100
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V~16(4)A	YW85071100000
12	S4	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	----	YE61250000000
15		Terminal board	----	YE61253500000
16	M1	Pump motor	400V 50Hz	-----
17	M2	Compressor	400V 50Hz 2.68kW	----
18	EH1	Crankcase heater	230V 50/60Hz 35W	----

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

Structure Characteristics and Working Principle

SIC-5W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Main switch	25A	YE10210300000
2	Q2	Circuit breaker	25A	YE40602500000
3	K1	Contactor	230VAC 50/60Hz	YE00301000000
4	K2	Contactor	230VAC 50/60Hz	YE00321100000
5	A	Temperature controller	230VAC 50/60Hz 2W	YE85000500000
6	RT	Thermistor	----	-----
7	F1	Overload relay	----	YE01162500000
8	F2	Overload relay	8-12.5A	YE01812500000
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V~16(4)A	YW85071100000
12	S4	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	----	YE61250000000
15		Terminal board	----	YE61253500000
16		Terminal board	----	YE61040000000
17		Terminal board	----	YE61043500000
18	M1	Pump motor	400V 50Hz	----
19	M2	Compressor	400V 50Hz 4.43kW	----
20	EH1	Crankcase heater	230V 50/60Hz 35W	----

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

Structure Characteristics and Working Principle

SIC-8W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Main switch	32A	YE10220300000
2	Q2	Circuit breaker	40A	YE40604000000
3	K1	Contactor	230VAC 50/60Hz	YE00301000000
4	K2	Contactor	230VAC 50/60Hz	YE00331100000
5	A	Temperature controller	230VAC 50/60Hz 2W	YE85000500000
6	RT	Thermistor	-----	-----
7	F11	Fuse	2A	YE41001000000
8	F1	Overload relay	-----	YE01025400000
9	F2	Overload relay	12.5-20A	YE01125200100
10	S1 S2	Control switch	250V 10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V 16(4)A	YW85071100000
12	S4	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	-----	YE61250000000
15		Terminal board	-----	YE61253500000
16		Terminal board	-----	YE61040000000
17		Terminal board	-----	YE61043500000
18			-----	YE61060000000
19			-----	YE61063500000
20	M1	Pump motor	400V 50Hz	-----
21	M2	Compressor	400V 50Hz 7.0kW	-----
22	EH1	Crankcase heater	230V 50/60Hz 45W	-----

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

Structure Characteristics and Working Principle

SIC-10W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Main switch	32A	YE10220300000
2	Q2	Circuit breaker	50A	YE40605000000
3	K1	Contactor	230VAC 50/60Hz	YE00301000000
4	K2	Contactor	230VAC 50/60Hz	YE00331100000
5	A	Temperature controller	230VAC 50/60Hz 2W	YE85000500000
6	RT	Thermistor	-----	-----
7	F1	Overload relay	-----	YE01025400000
8	F2	Overload relay	16-25A	YE01162500100
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V 10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V 16(4)A	YW85071100000
12	S4	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	-----	YE61250000000
15		Terminal board	-----	YE61253500000
16		Terminal board	-----	YE61040000000
17		Terminal board	-----	YE61043500000
18		Terminal board	-----	YE61060000000
19		Terminal board	-----	YE61063500000
20	M1	Pump motor	400V 50Hz	-----
21	M2	Compressor	400V 50Hz 9.06kW	-----
22	EH1	Crankcase heater	230V 50/60Hz 45W	-----

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

Structure Characteristics and Working Principle

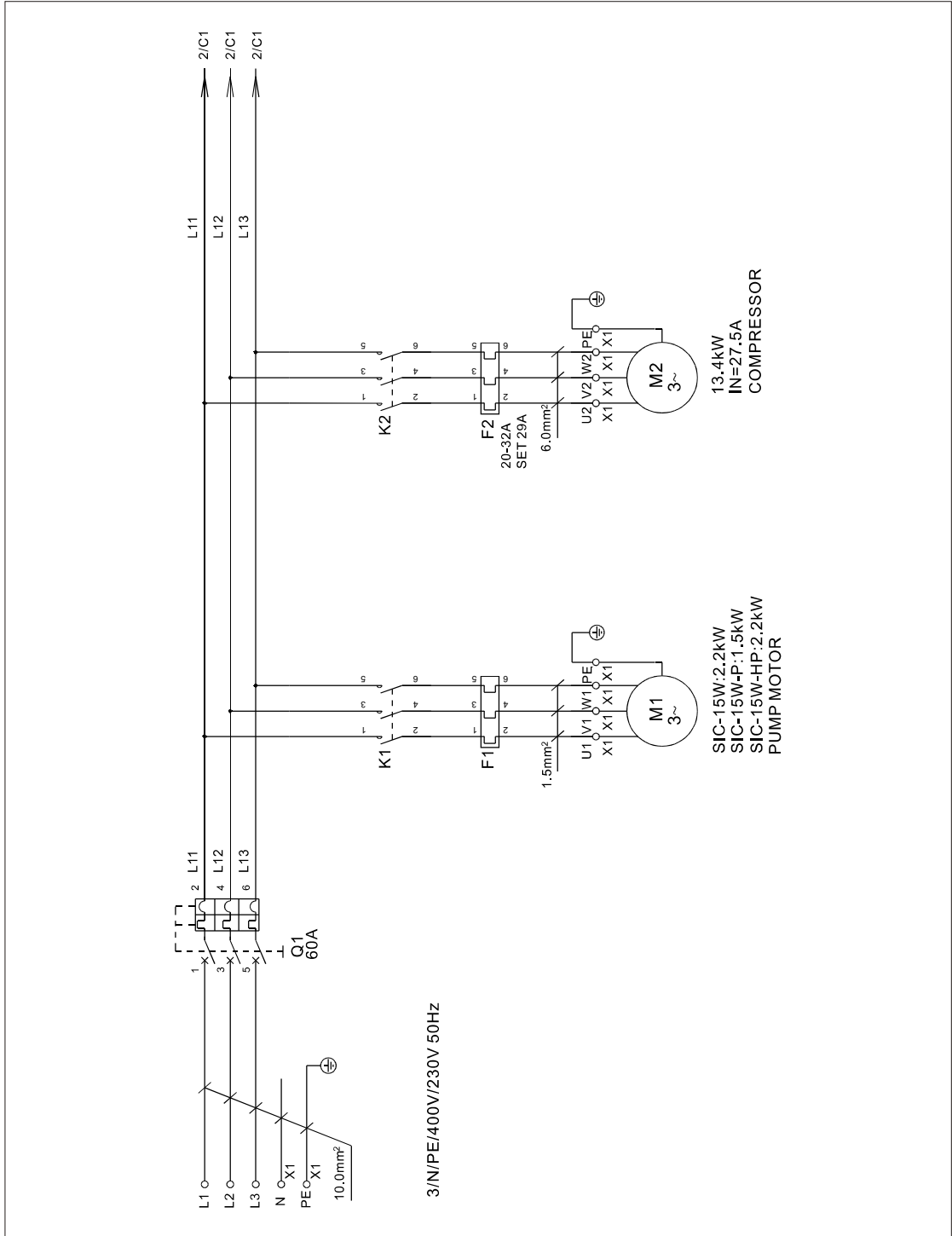
SIC-12.5W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Main switch	63A	YE10250400000
2	Q2	Circuit breaker	50A	YE40605000000
3	K1	Contactor	230VAC 50/60Hz	YE00301000000
4	K2	Contactor	230VAC 50/60Hz	YE00341100000
5	A	Temperature controller	230VAC 50/60Hz 2W	YE85000500000
6	RT	Thermistor	-----	-----
7	F1	Overload relay	-----	YE01046300100
8	F2	Overload relay	16-25A	YE01162500300
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V 10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V 16(4)A	YW85071100000
12	S4	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	-----	YE61250000000
15		Terminal board	-----	YE61253500000
16		Terminal board	-----	YE61060000000
17		Terminal board	-----	YE61063500000
18	M1	Pump motor	400V 50Hz	-----
19	M2	Compressor	400V 50Hz 10.3KW	-----
20	EH1	Crankcase heater	230V 50/60Hz 45W	-----

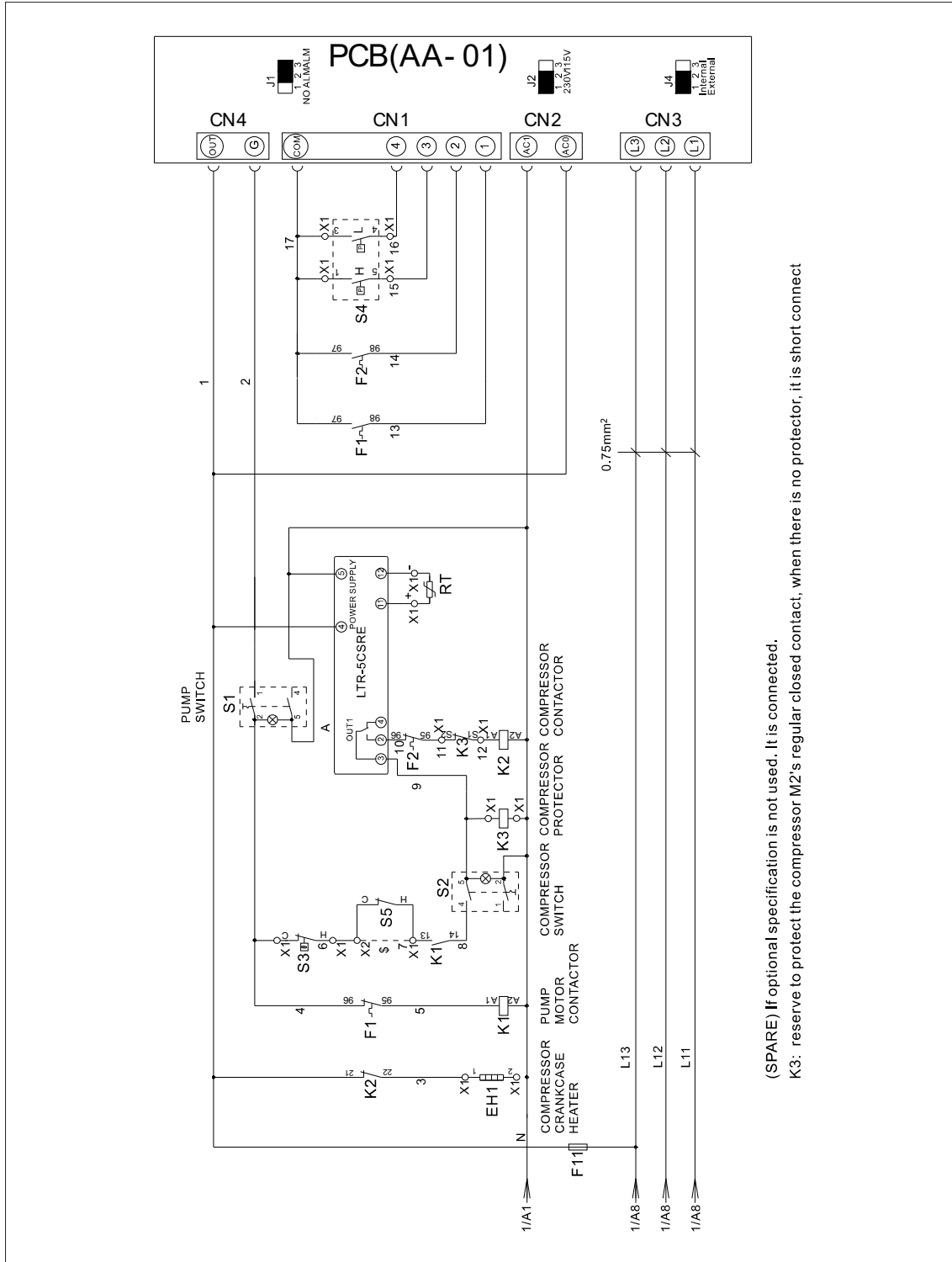
*Indicates latent wearing parts; **Indicates latent wearing parts and it's suggested to back them up.

2.7 SIC-15W

Main Electrical Circuit

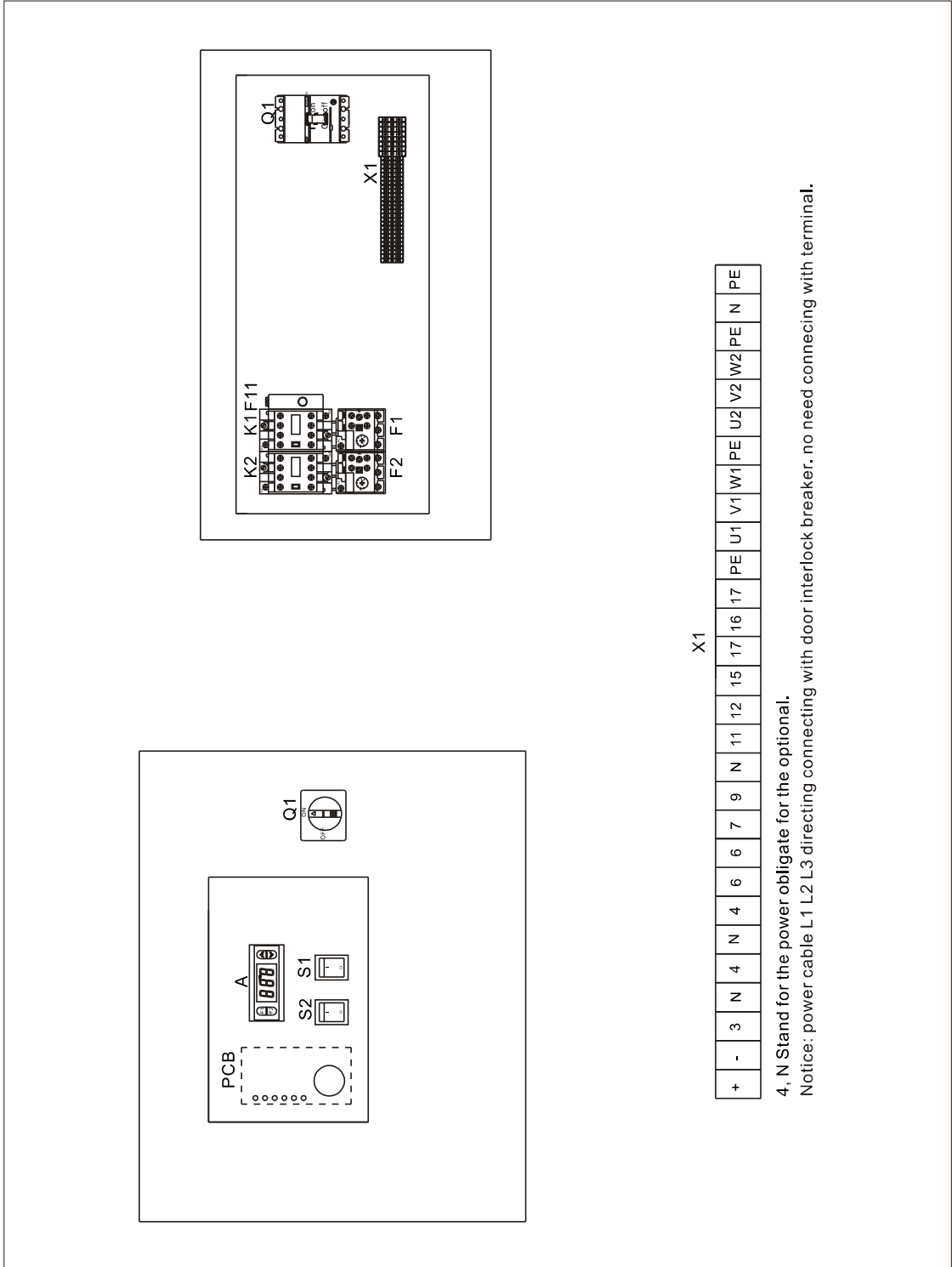


Control Circuit



(SPARE) If optional specification is not used, it is connected.
 K3: reserve to protect the compressor M2's regular closed contact, when there is no protector, it is short connect

Electrical Components Layout



Structure Characteristics and Working Principle

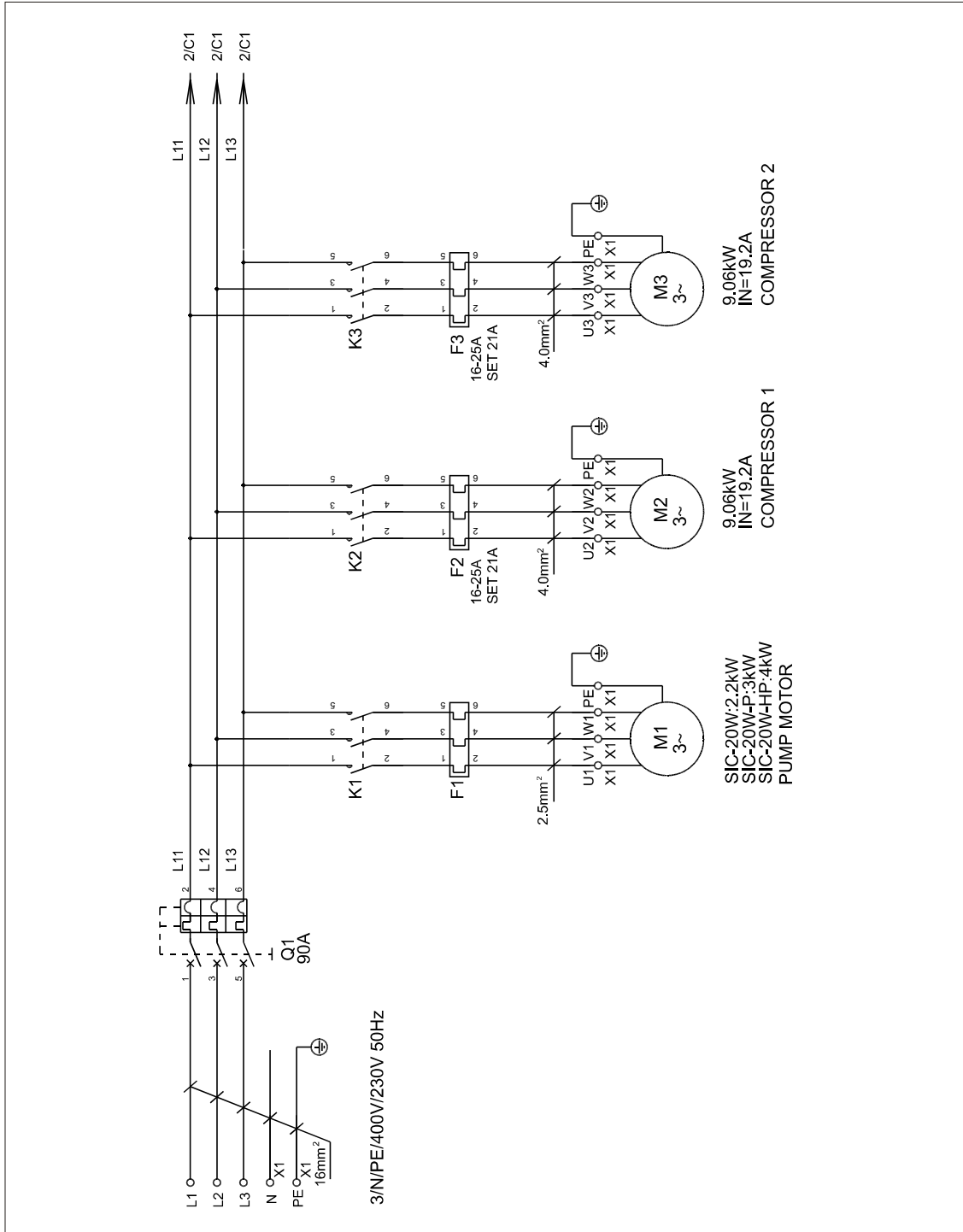
SIC-15W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	60A	YE41106000000
2	K1	Contactora	230VAC 50/60Hz	YE00301000000
3	K2	Contactora	230VAC 50/60Hz	YE00341100000
4	K3	Compressor protector	-----	-----
5	A	Temperature controller	230VAC 50/60Hz 2W	YE85000500000
6	RT	Thermistor	-----	-----
7	F1	Overload relay	-----	YE01046300100
8	F2	Overload relay	20-32A	YE01203200200
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V~16(4)A	YW85071100000
12	S4	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	-----	YE61250000000
15		Terminal board	-----	YE61253500000
16		Terminal board	-----	YE61060000000
17		Terminal board	-----	YE61063500000
18		Terminal board	-----	YE61100000000
19		Terminal board	-----	YE61103500000
20	M1	Pump motor	400V 50Hz	-----
21	M2	Compressor	400V 50Hz 13.4kW	-----
22	EH1	Crankcase heater	230V 50/60Hz 45W	-----

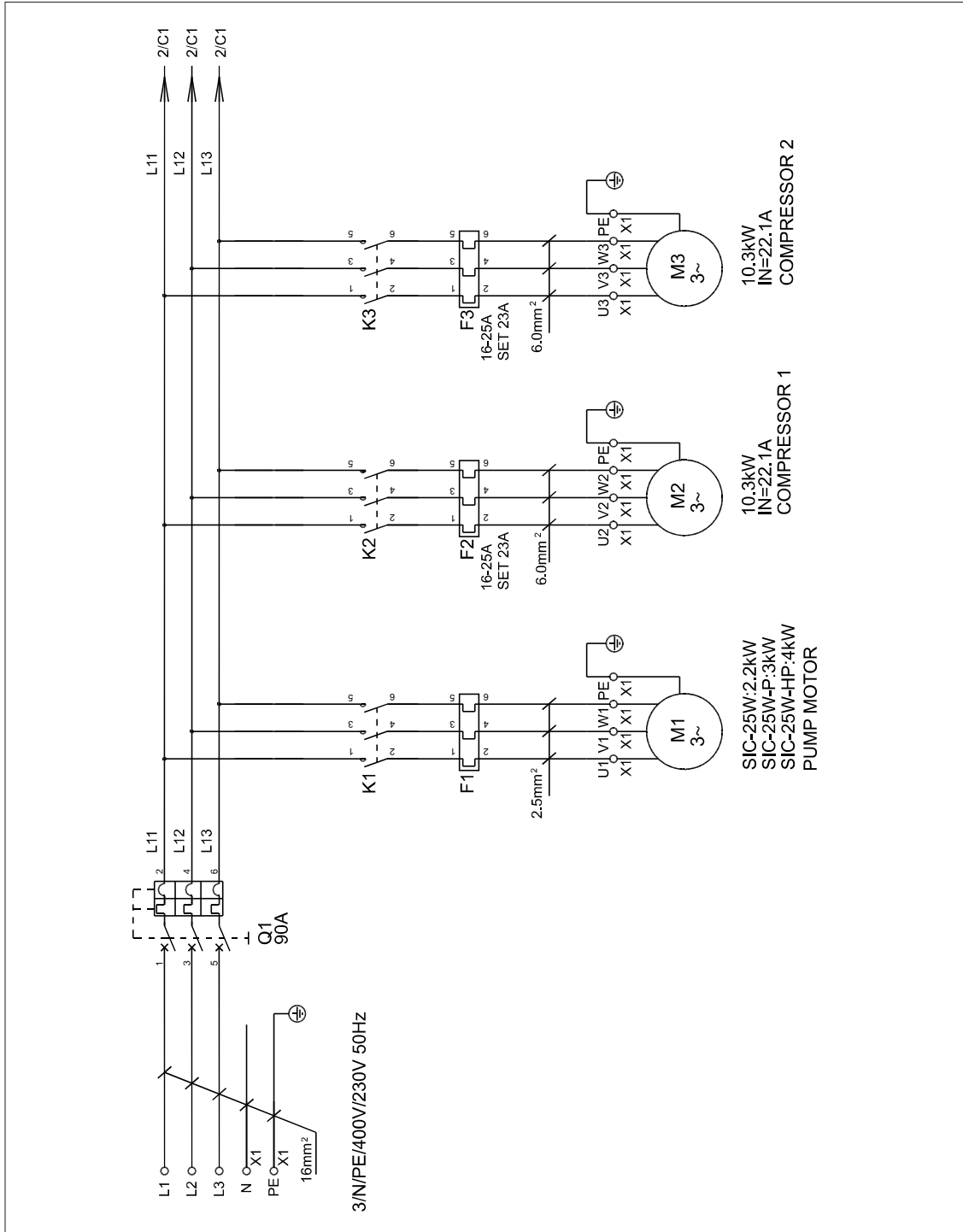
*Indicates latent wearing parts; **Indicates latent wearing parts and it's suggested to back them up.

2.8 SIC-20W / 25W

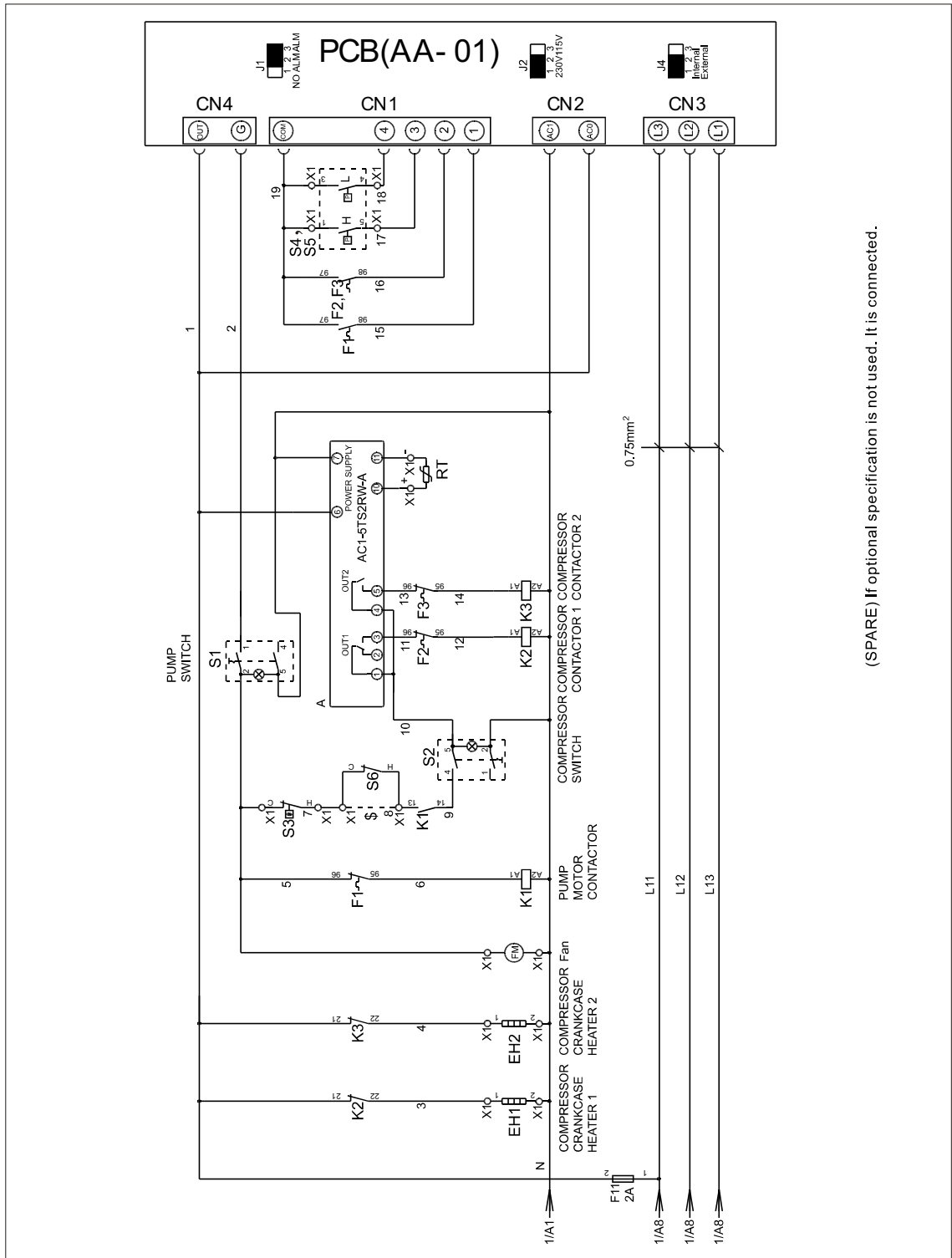
SIC-20W Main Electrical Circuit



SIC-25W Main Electrical Circuit

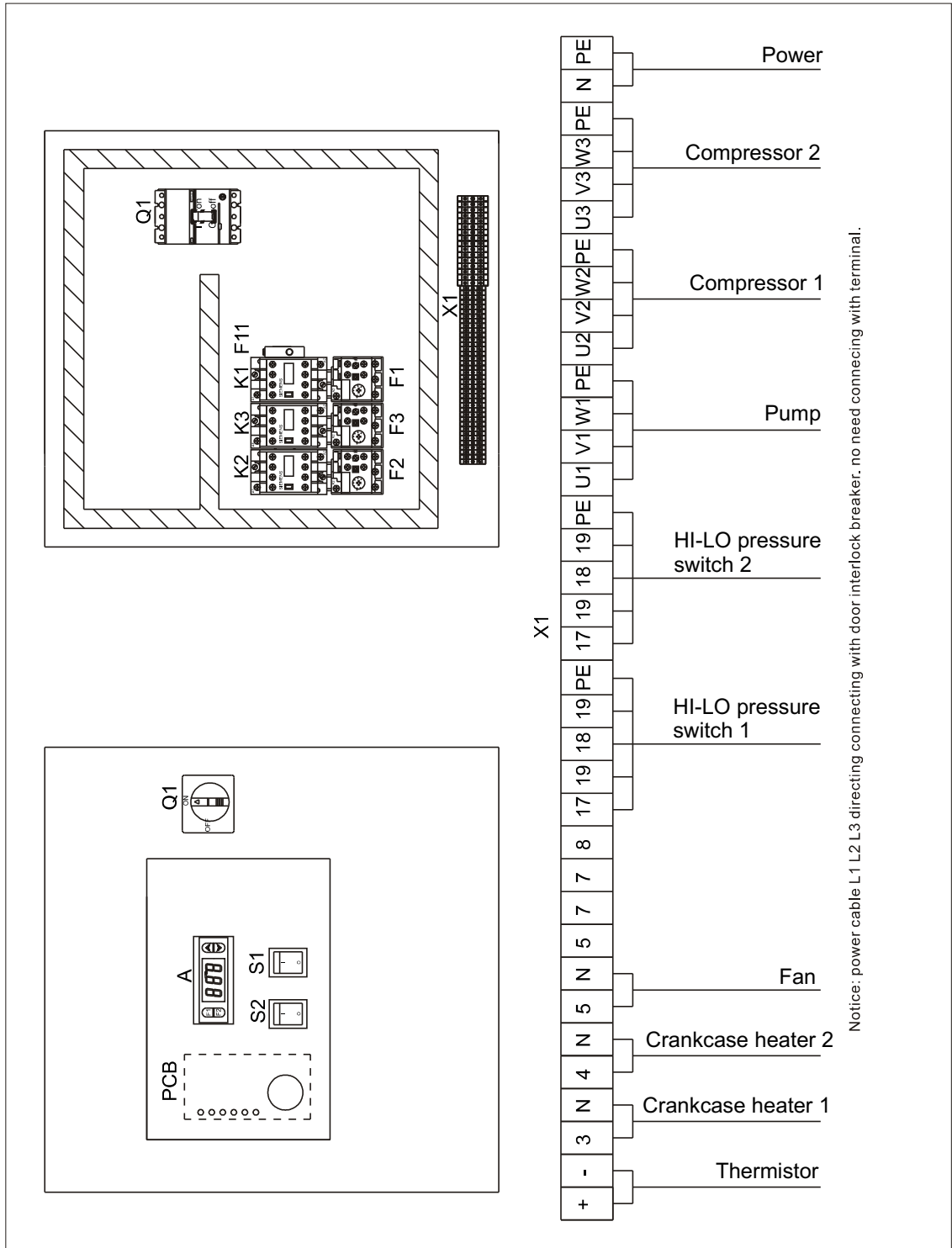


Control Circuit



(SPARE) If optional specification is not used, it is connected.

Electrical Components Layout



Structure Characteristics and Working Principle

SIC-20W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	90A	YE41109000000
2	K1	Contactor	230VAC 50/60Hz	YE00301000000
3	K2 K3	Contactor	230VAC 50/60Hz	YE00331100000
4	A	Temperature controller	230V 50/60Hz 12VAC/DC 2W	YE85121300000
5	T	Transformer	IN=230V OUT=12V 3VA	YE70015300000
6	RT	Thermistor	-----	-----
7	F1	Overload relay	-----	YE01046300100
8	F2 F3	Overload relay	16-25A	YE01162500100
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V~5(4)A	YW85071100000
12	S4 S5	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	-----	YE61250000000
15		Terminal board	-----	YE61253500000
16		Terminal board	-----	YE61040000000
17		Terminal board	-----	YE61043500000
18		Terminal board	-----	YE61160000000
19		Terminal board	-----	YE61163500000
20	M1	Pump motor	400V 50Hz	-----
21	M2 M3	Compressor	400V 50Hz 9.06kW	-----
22	EH1 EH2	Crankcase heater	230V 50/60Hz 45W	-----
23	FM	Fan	230V 50/60Hz	-----

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

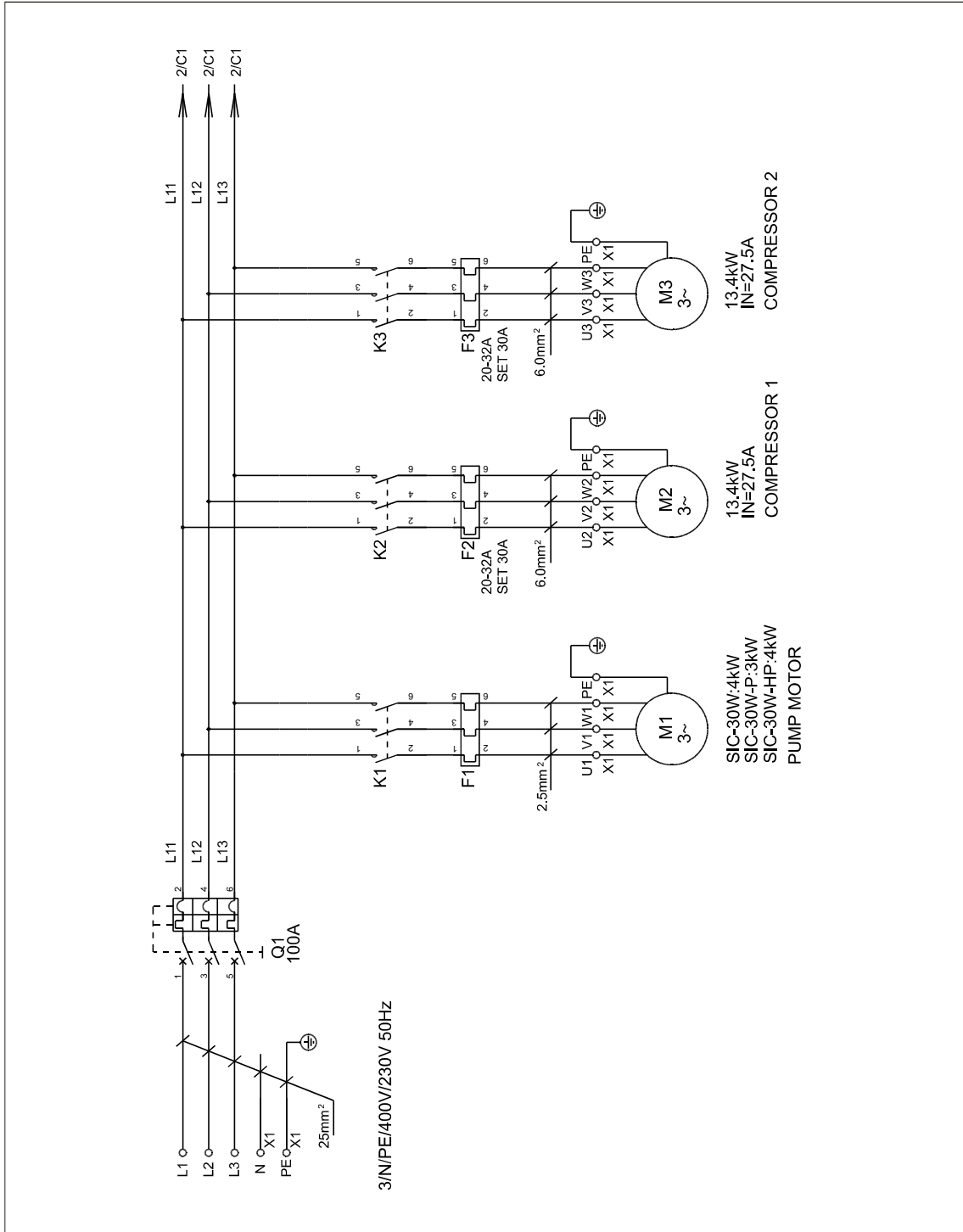
SIC-25W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	90A	YE41109000000
2	K1	Contactor	230VAC 50/60Hz	YE00301000000
3	K2 K3	Contactor	230VAC 50/60Hz	YE00331100000
4	A	Temperature controller	230V 50/60Hz 12VAC/DC 2W	YE85121300000
5	T	Transformer	IN=230V OUT=12V 3VA	YE70015300000
6	RT	Thermistor	-----	-----
7	F1	Overload relay	-----	YE01046300100
8	F2 F3	Overload relay	16-25A	YE01162500100
9	F11	Fuse	2A	YE41001000000
10	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
11	S3	Anti-frozen switch	250V~5(4)A	YW85071100000
12	S4 S5	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
13	PCB	Control board	230V 50Hz	YE80000100000
14	X1	Terminal board	-----	YE61250000000
15		Terminal board	-----	YE61253500000
16		Terminal board	-----	YE61060000000
17		Terminal board	-----	YE61063500000
18		Terminal board	-----	YE61160000000
19		Terminal board	-----	YE61163500000
20	M1	Pump motor	400V 50Hz	-----
21	M2 M3	Compressor	400V 50Hz 10.3kW	-----
22	EH1 EH2	Crankcase heater	230V 50/60Hz 45W	-----
23	FM	Fan	230V 50/60Hz	-----

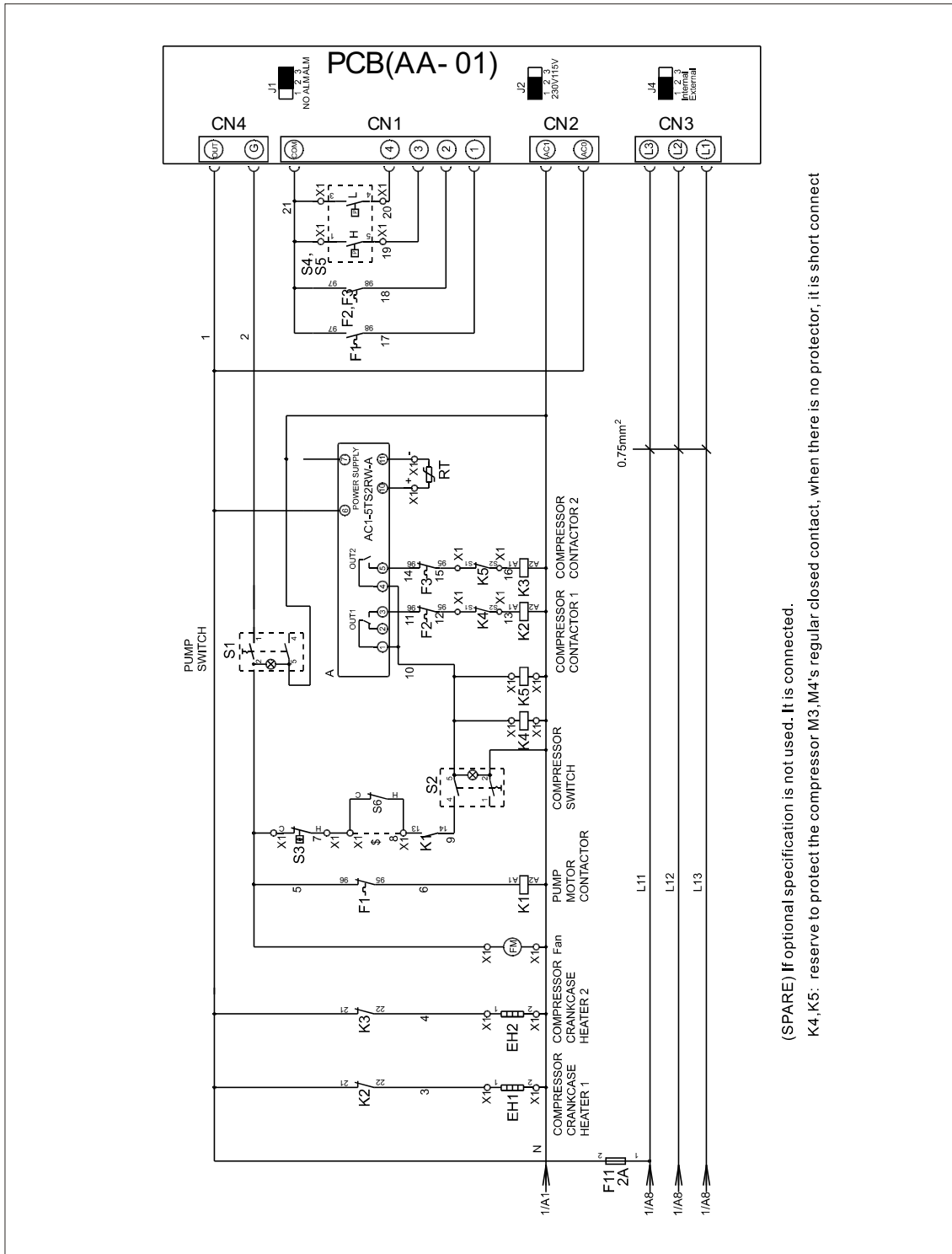
*Indicates latent wearing parts; **Indicates latent wearing parts and it's suggested to back them up.

2.9 SIC-30W

Main Electrical Circuit



Control Circuit



Structure Characteristics and Working Principle

SIC-30W Electrical Components List

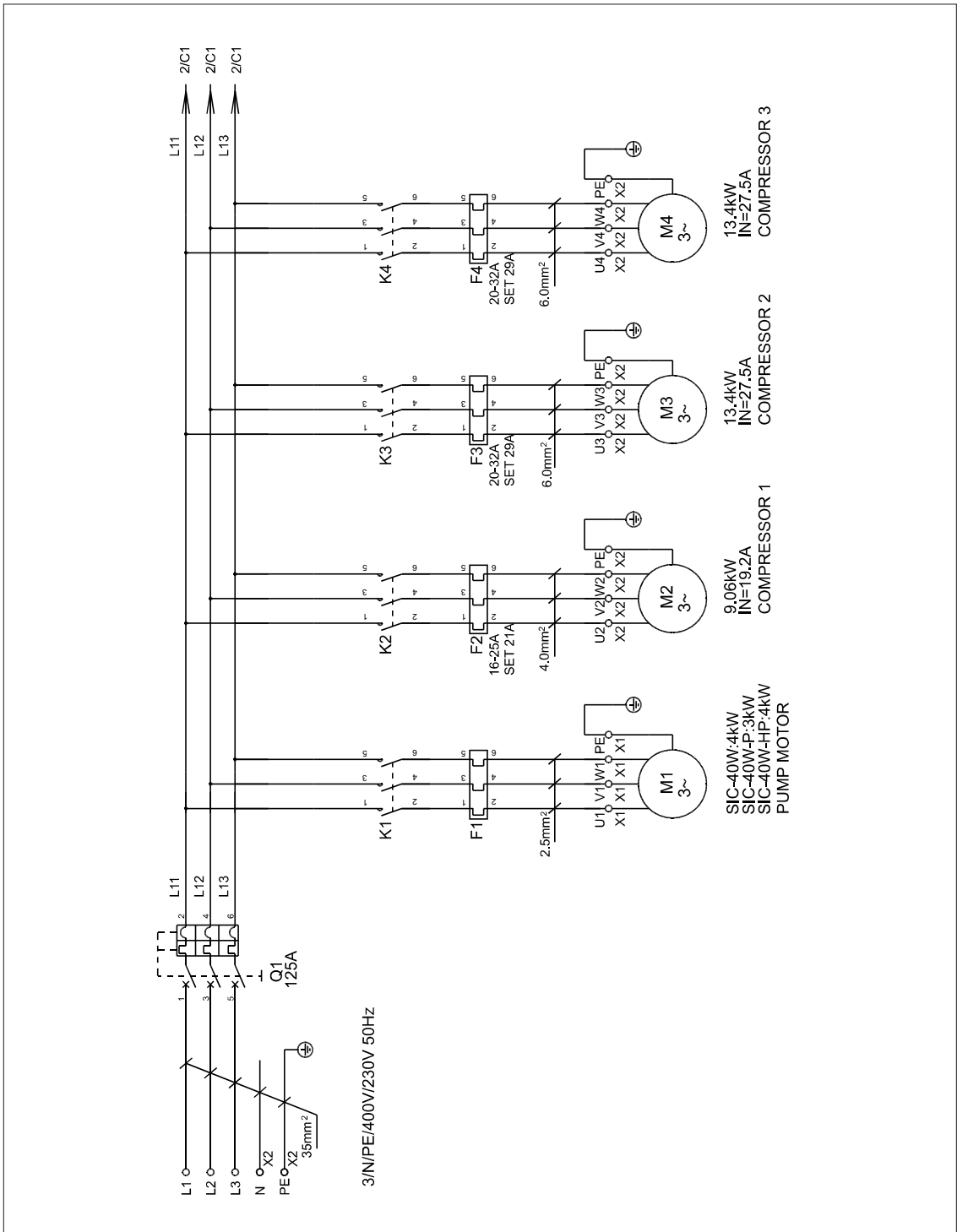
No .	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	100A	YE41110000000
2	K1	Contactor	230VAC 50/60Hz	YE00311000000
3	K2 K3	Contactor	230VAC 50/60Hz	YE00341100000
4	K4 K5	Contactor	230VAC 50/60Hz	-----
5	A	Temperature controller	230V 50/60Hz 12VAC/DC 2W	YE85121300000
6	T	Transformer	IN=230V OUT=12V 3VA	YE70015300000
7	RT	Thermistor	PTC 1000	-----
8	F1	Overload relay	-----	YE01631000000
9	F2 F3	Overload relay	20-32A	YE01203200200
10	F11	Fuse	2A	YE41001000000
11	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
12	S3	Anti-frozen switch	250V~5(4)A	YW85071100000
13	S4 S5	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
14	PCB	Control board	230V 50Hz	YE80000100000
15	X1	Terminal board	-----	YE61250000000
16		Terminal board	-----	YE61253500000
17		Terminal board	-----	YE61060000000
18		Terminal board	-----	YE61063500000
19		Terminal board	-----	YE61350000000
20		Terminal board	-----	YE61353500000
21	M1	Pump motor	400V 50Hz	-----
22	M2 M3	Compressor	400V 50Hz 13.4kW	-----
23	EH1 EH2	Crankcase heater	230V 50/60Hz 45W	-----
24	FM	Fan	230V 50/60Hz	-----

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

Structure Characteristics and Working Principle

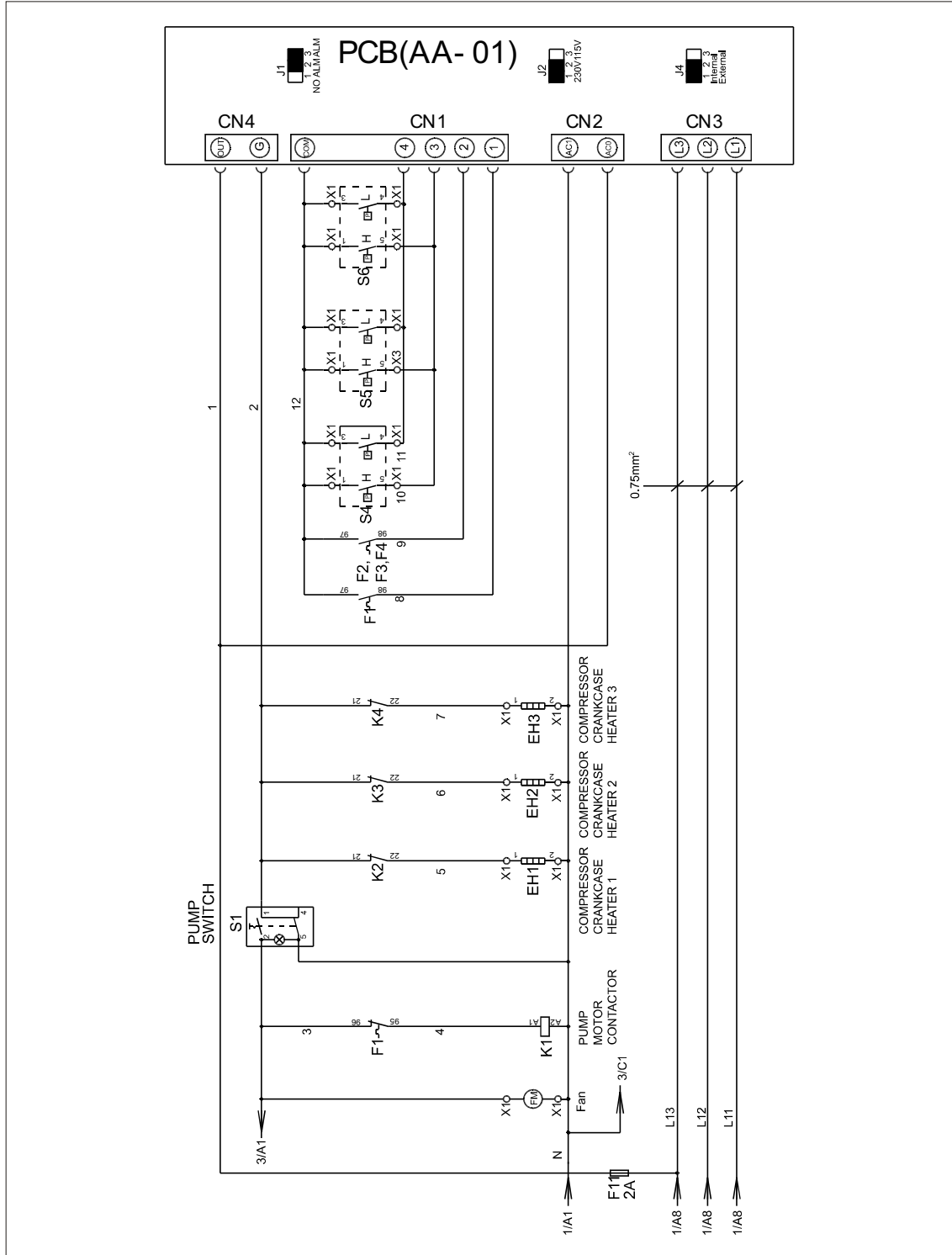
2.10 SIC-40W

Main Circuit

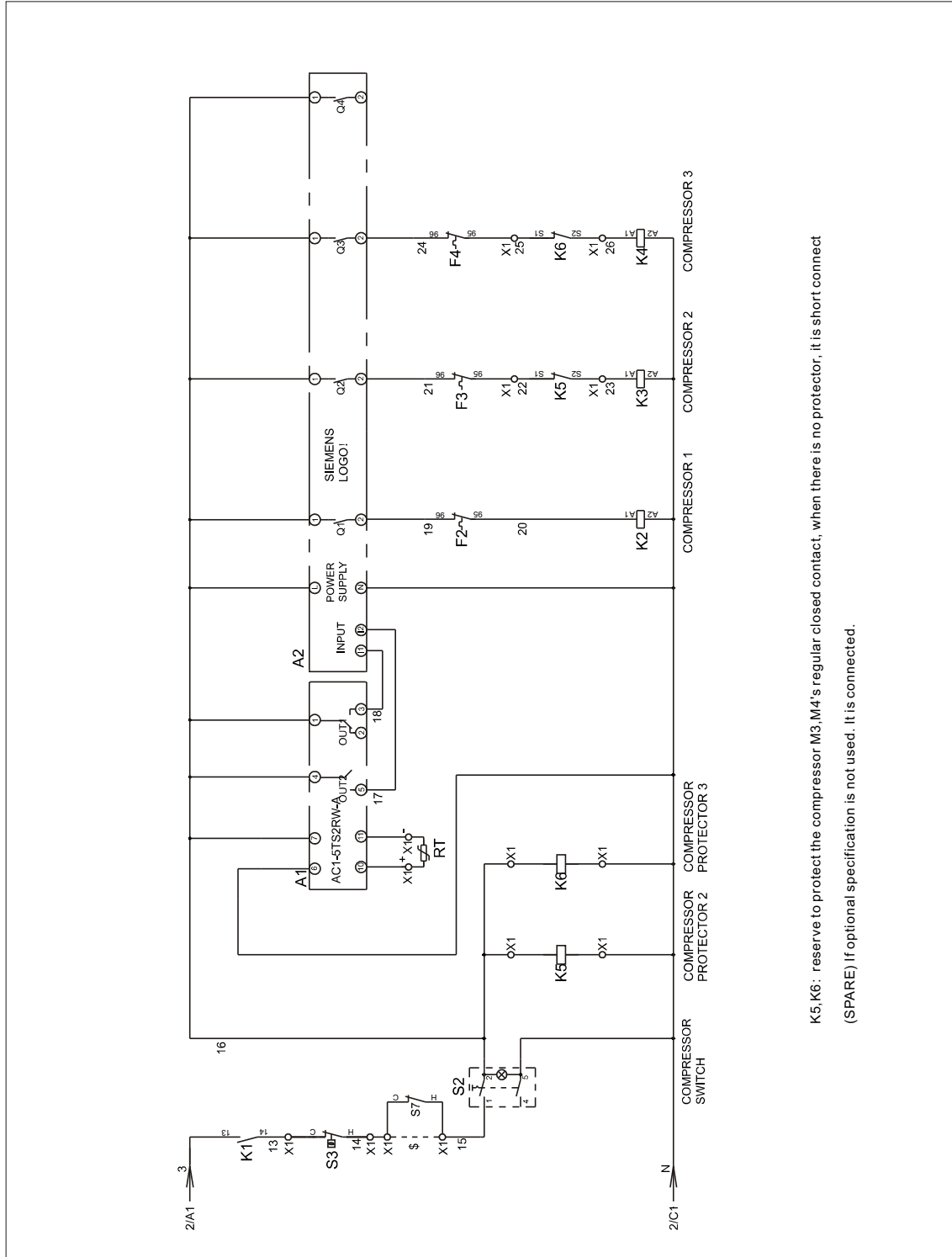


Structure Characteristics and Working Principle

Control Circuit

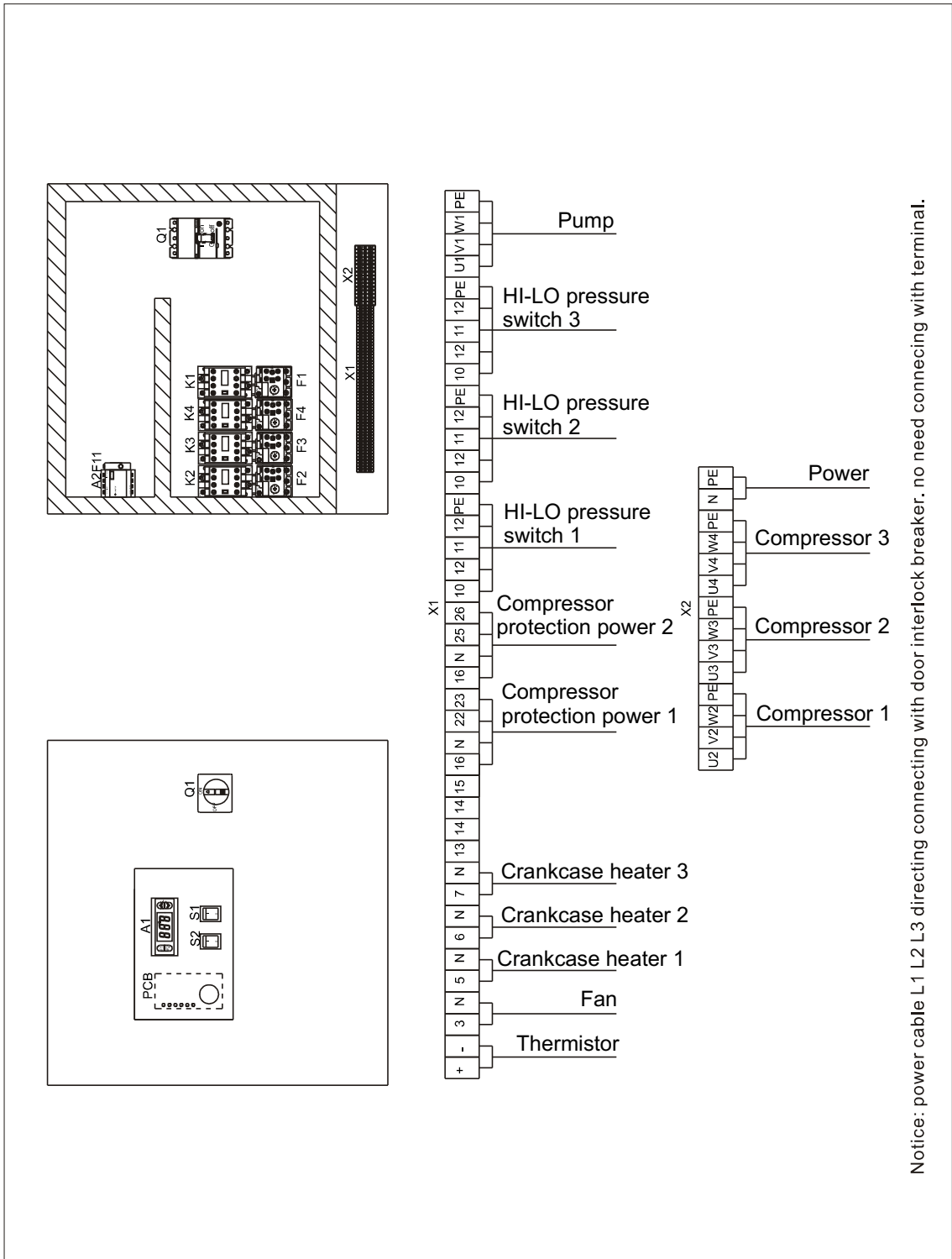


Structure Characteristics and Working Principle



K5, K6: reserve to protect the compressor M3, M4's regular closed contact, when there is no protector, it is short connect (SPARE) if optional specification is not used. It is connected.

Electrical Components Layout



Notice: power cable L1 L2 L3 directing connecting with door interlock breaker. no need connecting with terminal.

Structure Characteristics and Working Principle

SIC-40W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	125A	YE41161200000
2	K1	Contactor	230VAC 50/60Hz	YE00311000000
3	K2	Contactor	230VAC 50/60Hz	YE00331100000
4	K3 k4	Contactor	230VAC 50/60Hz	YE00341100000
5	K5 k6	Compressor protector	----	----
6	A1	Temperature controller	12V AC/DC 2W	YE85121300000
7	A2	LOGO controller	AC115-230V No display model	YE81023000000
8	T	Transformer	IN=230V OUT=12V 3VA	YE70015300000
9	RT	Temperature sensor	----	----
10	F1	Overload relay	----	YE01631000000
11	F2	Overload relay	16-25A	YE01162500100
12	F3 F4	Overload relay	20-32A	YE01203200200
13	F11	Fuse	2A	YE41001000000
14	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
15	S3	Anti-frozen switch	250V~5(4)A	YW85071100000
16	S4 S5 S6	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
17	PCB	Control board	230V 50Hz	YE80000100000
18	X1	Terminal board	----	YE61250000000
19	X1	Terminal board	----	YE61253500000
20	X2	Terminal board	----	YE61040000000
21		Terminal board	----	YE61043500000
22		Terminal board	----	YE61060000000
23		Terminal board	----	YE61063500000
24		Terminal board	----	YE61350000000
25		Terminal board	----	YE61353500000

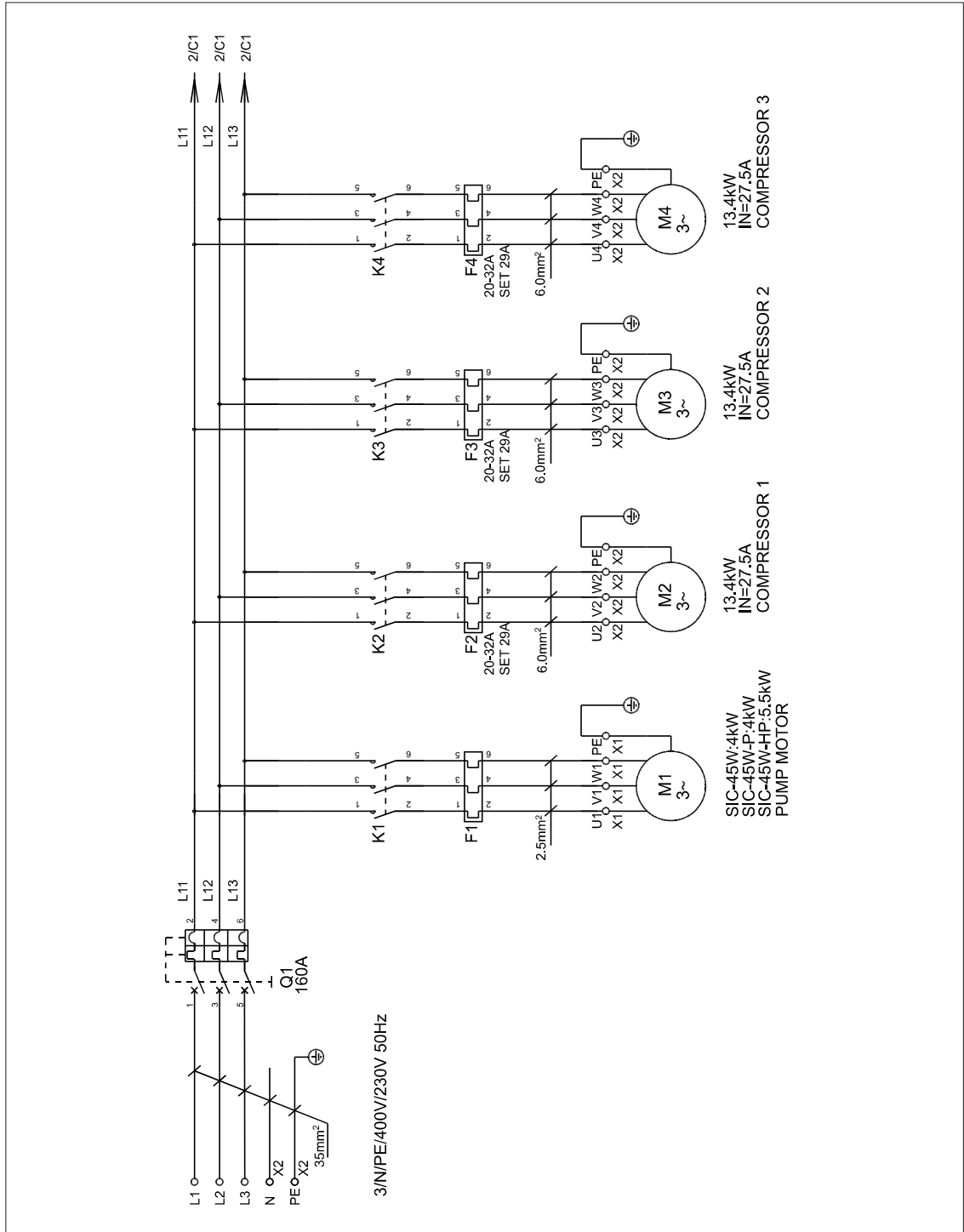
Structure Characteristics and Working Principle

No .	Symbol	Name	Specifications	Parts number
26	M1	Pump motor	400V 50Hz	-----
27	M2	Compressor	400V 50Hz 9.06kW	-----
28	M3 M4	Compressor	400V 50Hz 13.4kW	-----
29	EH1 EH2 EH3	Crankcase heater	230V 50/60Hz 45W	-----
30	FM	Fan	230V 50/60Hz	-----

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

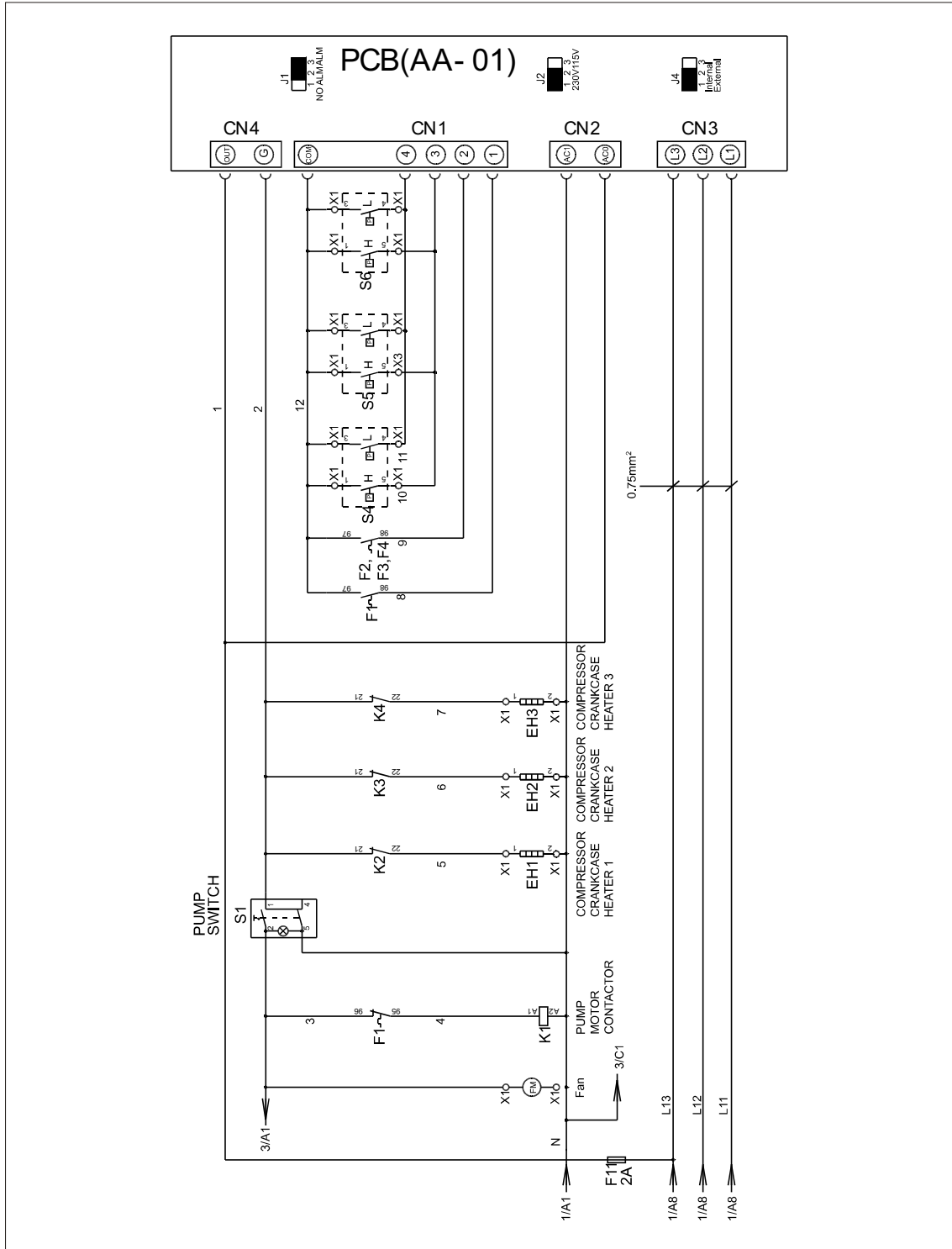
2.11 SIC-45W

Main Electrical Circuit

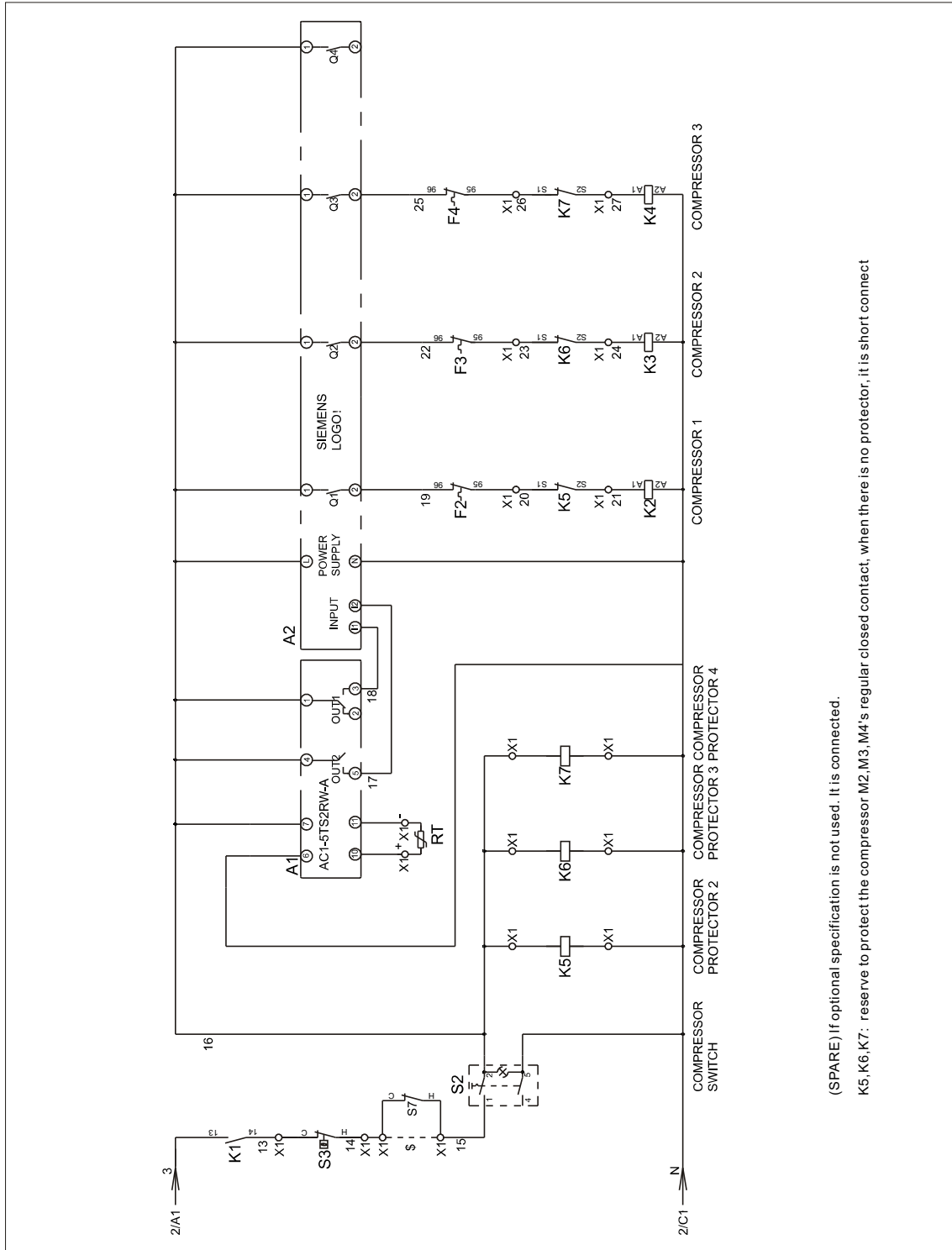


Structure Characteristics and Working Principle

Control Circuit



Structure Characteristics and Working Principle



(SPARE) If optional specification is not used. It is connected.

K5, K6, K7: reserve to protect the compressor M2, M3, M4's regular closed contact, when there is no protector, it is short connect

Structure Characteristics and Working Principle

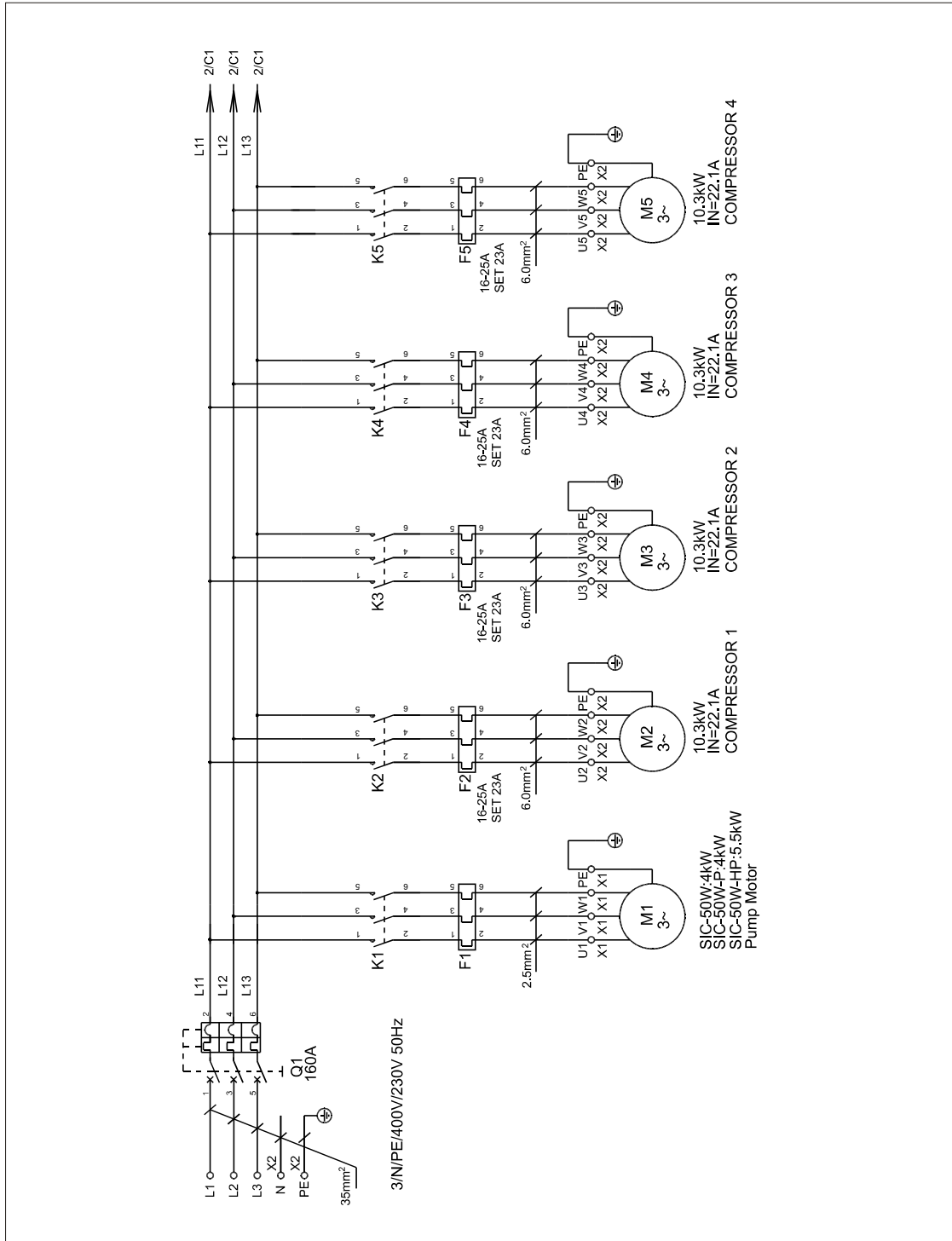
SIC-45W Electrical Components List

No .	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	160A	YE41161600000
2	K1	Contactor	230VAC 50/60Hz	YE00311000000
3	K2 K3 K4	Contactor	230VAC 50/60Hz	YE00341100000
4	K5 K6 K7	Compressor protector	230VAC 50/60Hz	----
5	A1	Temperature controller	12V AC/DC 2W	YE85121300000
6	A2	LOGO controller	AC115-230V No display model	YE81023000000
7	T	Transformer	IN=230V OUT=12V 3VA	YE70015300000
8	RT	Thermistor	----	----
9	F1	Overload relay	----	YE01631000000
10	F2 F3 F4	Overload relay	20-32A	YE01203200200
11	F11	Fuse	2A	YE41001000000
12	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
13	S3	Anti-frozen switch	250V~5(4)A	YW85071100000
14	S4 S5 S6	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
15	PCB	Control board	230V 50Hz	YE80000100000
16	X1	Terminal board	----	YE61250000000
17		Terminal board	----	YE61253500000
18	X2	Terminal board	----	YE61060000000
19		Terminal board	----	YE61063500000
20		Terminal board	----	YE61350000000
21		Terminal board	----	YE61353500000
22	M1	Pump motor	400V 50Hz	----
23	M2 M3 M4	Compressor	400V 50Hz 13.4kW	----
24	EH1 EH2 EH3	Crankcase heater	230V 50/60Hz 45W	----
25	FM	Fan	230V 50/60Hz	----

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

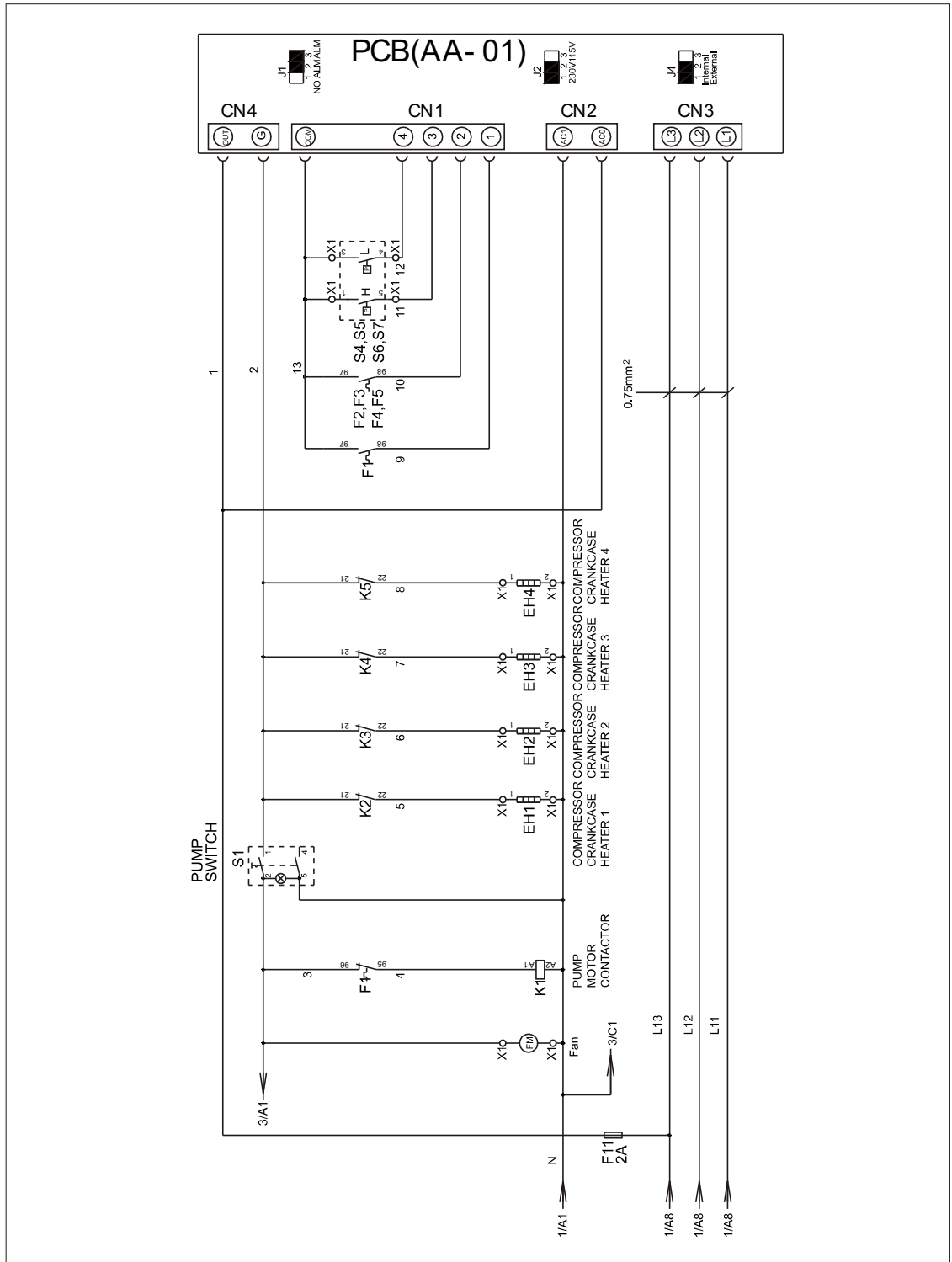
2.12 SIC-50W

Main Electrical Circuit

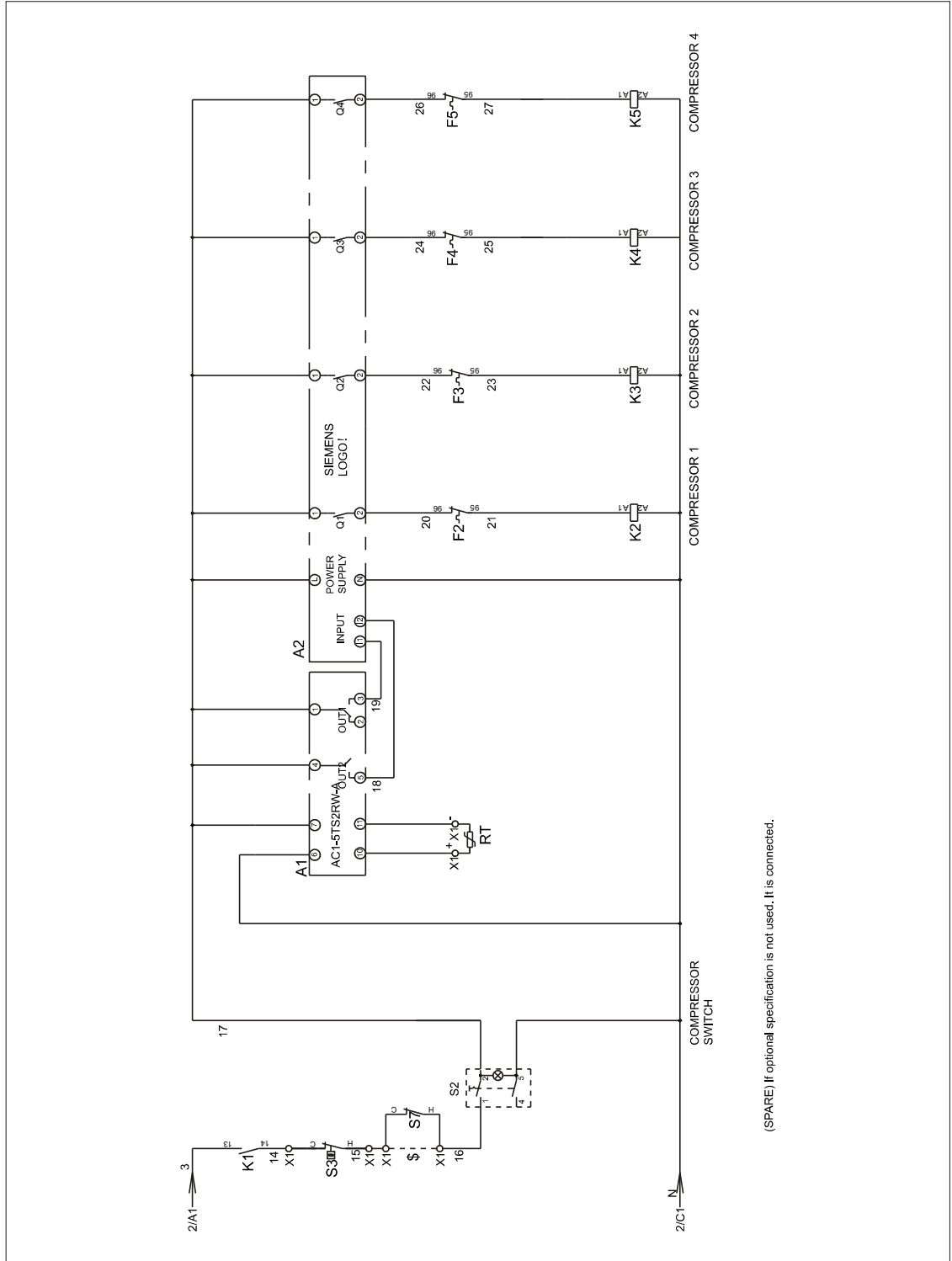


Structure Characteristics and Working Principle

Control Circuit

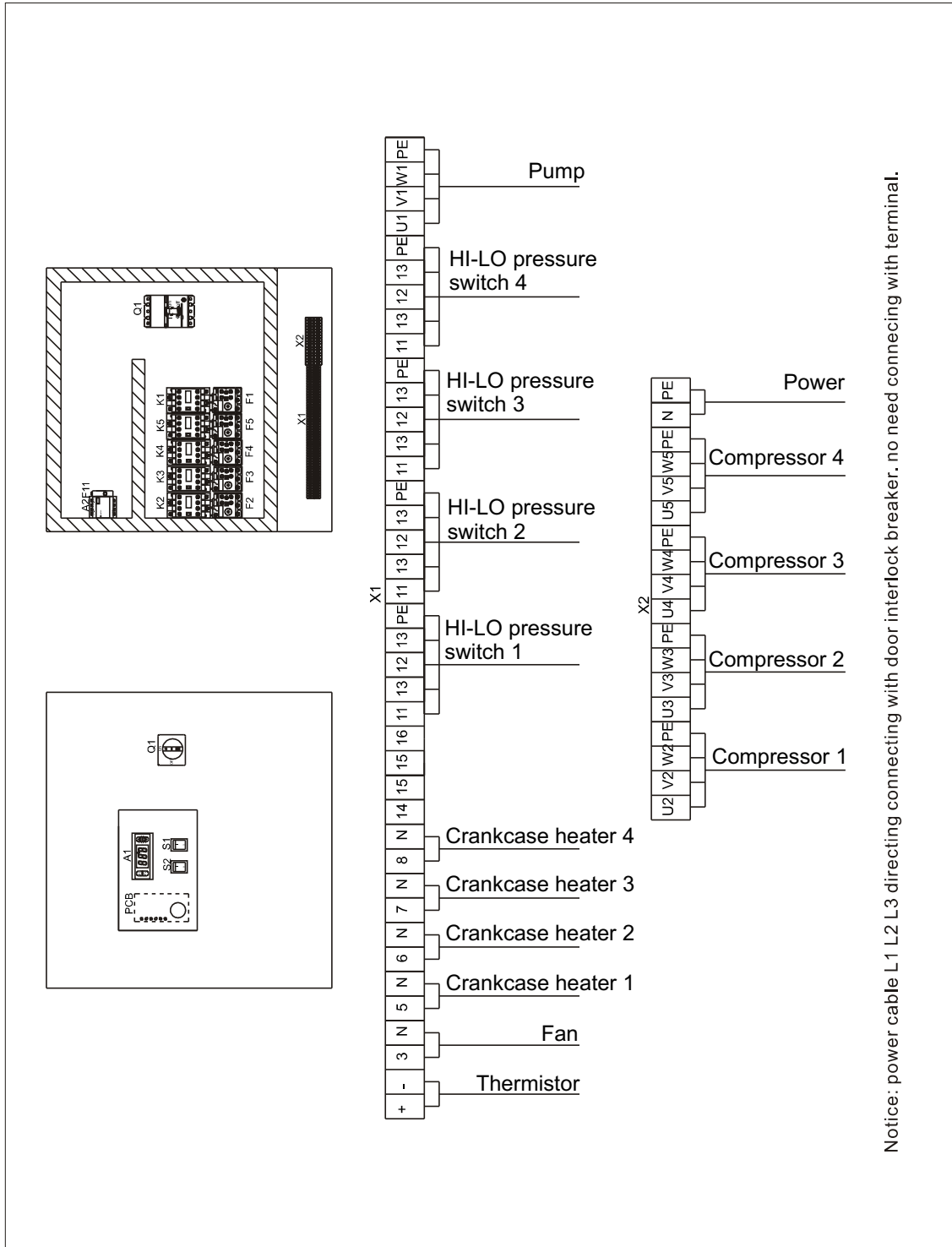


Structure Characteristics and Working Principle



Structure Characteristics and Working Principle

Electrical Components Layout



Notice: power cable L1 L2 L3 directing connecting with door interlock breaker. no need connecting with terminal.

Structure Characteristics and Working Principle

SIC-50W Electrical Components List

No.	Symbol	Name	Specifications	Parts number
1	Q1	Circuit breaker	160A	YE41161600000
2	K1	Contactor	230VAC 50/60Hz	YE00311000000
3	K2 K3 K4 K5	Contactor	230VAC 50/60Hz	YE00341100000
4	A1	Temperature controller	12V AC/DC 2W	YE85121300000
5	A2	LOGO controller	AC115-230V No display model	YE81023000000
6	T	Transformer	IN=230V OUT=12V 3VA	YE70015300000
7	RT	Temperature sensor	PTC1000	----
8	F1	Overload relay	----	YE01631000000
9	F2 F3 F4 F5	Overload relay	16-25A	YE01162500300
10	F11	Fuse	2A	YE41001000000
11	S1 S2	Control switch	250V~10(5)A 4P WH	YE10210400000
12	S3	Anti-frozen switch	250V~5(4)A	YW85071100000
13	S4 S5 S6 S7	HI-LO pressure switch	H:5-30bar L:-0.7-6bar	YE90083000100
14	PCB	Control board	230V 50Hz	YE80000100000
15	X1	Terminal board	----	YE61250000000
16		Terminal board	----	YE61253500000
17	X2	Terminal board	----	YE61060000000
18		Terminal board	----	YE61063500000
19		Terminal board	----	YE61350000000
20		Terminal board	----	YE61353500000
21	M1	Pump motor	400V 50Hz	----
22	M2 M3 M4 M5	Compressor	400V 50Hz 10.3kW	----
23	EH1 EH2 EH3 EH4	Crankcase heater	230V 50/60Hz 45W	----
24	FM	Fan	230V 50/60Hz	----

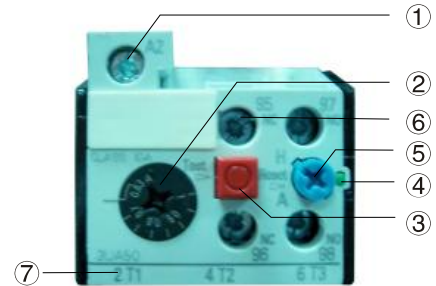
*Indicates latent wearing parts; **Indicates latent wearing parts and it's suggested to back them up.

2.13 Main Electrical Components List

Overload relay

Description of overload relay:

- 1) Terminal for contact coil A2.
- 2) Setting current adjusting scale.
- 3) Reset (blue).
- H: manual reset
- A: automatic reset
- 4) Switch position indication(green).



Tripping off of a manual-resetting is indicated by a pin projecting at the front plate.

- 5) Test button(red).
- 6) Auxiliary contact terminals shown in 95.96.97.98.

NC and NO contacts are shown in position 95.96. and 97.98. respectively.

- 7) Main circuit connection No. must correspond with terminal number of contactor.

At delivery, the overload relay is set for manual reset. (the reset button pointing to H). Manually reset the relay at the tripping off of the switch. When motor overload occurs, stop the machine. Check and solve the problem first. Then open the door of control box, press down the reset button of overload relay. (if you can not press down the reset button, wait for one more minute)

3. Installation and Debugging



Before installation of the machine, please read this chapter carefully, and you must install the machine according to the following procedures!

Before installing the water chiller, please design the pipe system reasonably, lay out the positions of injection mould machine and cooling water tower to make the repair and maintenance convenient, the installation of SIC-W should be convenient to operate and keep appropriate distance from cooling water tower. The cooling water tower should be installed in the open air, and make sure that the cooling water tower is placed in the environment with good ventilation to release contamination and gas; If the cooling water tower is located in factory, the exhaust fan should be installed to keep air circulating. As the discharged air can contain a great deal of water content, the work capacity of the switches and controllers could be influenced if the exhaust fan is installed too close to the machine. Additionally, the cooling water is requested to have certain cleanness degree to prevent the cooler from blocking and shorting service life.

3.1 Installation Instructions

- 1) Make sure that the electric pressure and frequency of the electric power supply match those on the data plate.
- 2) The connection of cable conductor and earth wire should comply with the local rules and regulations.
- 3) Use independent cable conductor and switch of power supply, the diameter of the electric wire should be not less than that of the electric wire which is used for the electric control box.
- 4) The terminal post of the electric wire should be firm and safe
- 5) The SIC-W of this series should use three phases and five lines, the power supply connects the power supply wire under voltage, (N) connects the zero line, (G) connects the earth wire.
- 6) Power distribution requirements:
The electric voltage of main power supply: The rated voltage in the nameplate $\pm 10\%$
The frequency of main power supply: The rated frequency in the nameplate $\pm 2\%$

- 7) Install pipe line working system according to the wiring installation diagram, And use thermal insulating materials to protect the refrigerated water pipe Line.
- 8) Choose appropriate cooling water tower according to the refrigeration capability of the SIC-W.
- 9) The pipe line diameter of cooling water tower and circulating pump should be not less than that of the connection tube of condenser (the installation of ingress and egress pipe line system should comply with the assembly line diagram). When perform long distance transportation, the heavy caliber water pipe should be used for connecting the cooling water.
- 10) The automatic exhaust steam valve should be installed in the topmost place of the refrigerated water circulation loop system, and the discharge valve should be installed at the lowest place.
- 11) When the water quality is poor and the ambient environment of cooling water tower is inclement, the circulation loop system of cooling water and Refrigerated water should install filtering apparatuses and clean up regularly.
- 12) Complete the installation of pipe line system and carry out leakage test, the Refrigerated water circulation loop should be covered by thermal insulation layer to avoid the dissipation of energy of cooling and the water drop of pipe Lines.
- 13) This series model due to the water cooled in the cooling tank, the user must supply the chiller with enough cool water according to the manual requires while do system installation, or else the model would appear as high pressure over high, and cooling capacity getting down.



The power supply connection of ice water machine should be carried out by the professional electrician! The electric circuit of ice water machine should not be changed without the permission of our company.

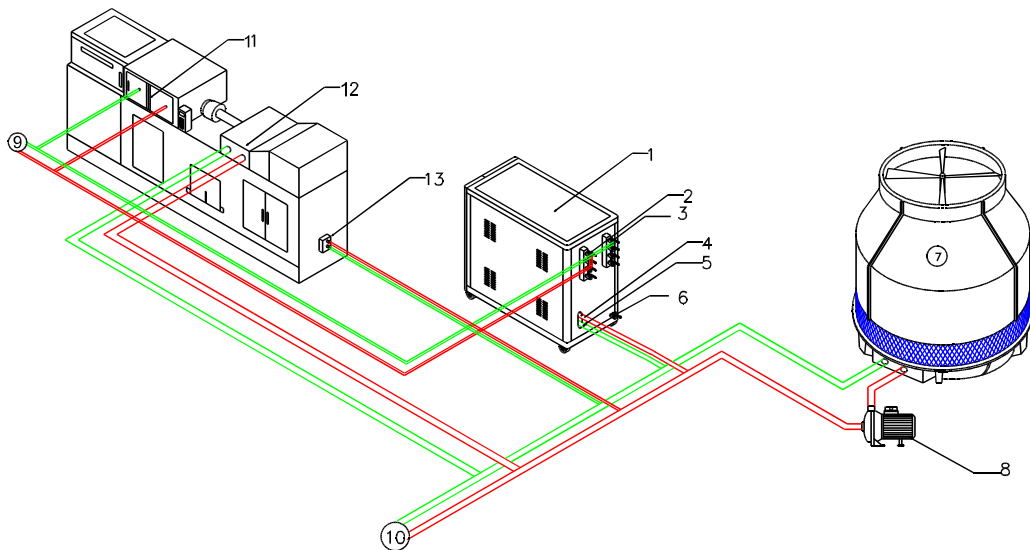
3.2 Installation Space

During installation of the machine, keep at least 500mm installation space around the machine as shown by the picture. Do not install the machine in a position crowded with other objects. This would cause inconvenience to operation, maintenance and repair.

Do not sit on the machine.



3.3 Schematic Drawing of Installation



Structure characteristics and working principle

①	SIC-W	⑧	Cooling water pump
②	Outlet of SIC-W	⑨	Refrigerated water circulation
③	Inlet of SIC-W	⑩	Cooling water circulation
④	Outlet of cooling water	⑪	Mould cooling
⑤	Inlet of cooling water	⑫	Cooling tank
⑥	Discharge port	⑬	Oil cooling
⑦	Cooling water tower		

3.4 Electric Circuit Connections

Make sure that power supply is the same as required before installation.

SIC-W series should be connected with 3 Φ 400V power supply and earth wire.



Before connecting the machine with power supply, please make sure that main switch is turned off!

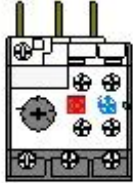
4. Application and Operation

4.1 Control Panel



No.	Name	Functions	Remarks
1	Power indicator	Connect through power supply and turn on the main switch, the indicator will becomes bright.	Note! Do not disassemble any electrical components or terminals in case of electrical shock.
2	Anti-phase indicator	It is used to indicate phase reversal or phase shortage. The buzzer sounds and system stops working.	After making sure that no phase of power supply is lost, and exchange the positions of any two wires to get rid of the fault, then, the lamp and buzzer will be reset.

Application and Operation

No.	Name	Functions	Remarks
3	Pump overload indicator	When pump current exceeds the limits, this indicator becomes bright. The buzzer sounds and system stops working.	<p>Check if the motor is blocked or the bearing is broken. If motor works normally, please check if the setting current of the overload relay in the control box is set too low. After the above measures are taken, wait for about 1 minute, then press the blue "reset" button to reset the alarm.</p> 
4	Compressor overload alarm	If the working current of the compressor is above the setting value of overload relay, the lamp will flash, the buzzer will sound, and system stops working.	Check if the setting current of overload relay is correct. Setting current of overload relay should be bigger than the rated current of the compressor.
5	High pressure alarm	The light is on and the buzzer makes a warning tone when the pressure of the compressor outlet is larger than the setting value of the high pressure switch. The system stops working.	Check the setting value of the high pressure switch to see whether it is reasonable. The setting value of the high pressure switch is 20 bar.
6	Low pressure alarm	When the inlet pressure of the compressor is lower than the setting value of the low-pressure switch, the alarm will be raised. The buzzer sounds and system stops working.	Low-pressure switch should be correctly set as 2 bar.
7	Buzzer	The buzzer makes an audible alarm when a problem is detected.	
8	Compressor switch	The start & stop of the compressor.	Note! Before turning on the compressor, turn on the pump first.
9	Pump switch	The start & stop of the pump.	Pump rotating direction should be correct.
10	Temperature controller	Temperature setting and control.	Please refer to page 6-4 for details.

4.2 System Startup

- 1) Turn on the main switch.



ON



OFF

- 2) Turn on the pump.

For units equipped with middle or high pressure pumps, outlet pressure of pump should not be out of range indicated in table below:

Type Models	50Hz		60Hz	
	Middle pressure	High pressure	Middle pressure	High pressure
SIC-3W	1.5~3.6	2.1~4.4	1.9~3.6	2.4~5.1
SIC-5W	1.5~3.5	2.1~4.3	1.9~3.1	2.4~5.0
SIC-8W	2.1~3.9	2.6~4.7	1.8~3.3	2.4~4.6
SIC-10W	2.1~3.4	2.6~4.2	1.8~3.0	2.4~4.1
SIC-12.5W	2.3~3.8	2.8~4.8	2.6~4.0	2.6~4.0
SIC-15W	2.3~3.7	2.8~4.5	2.6~3.9	2.6~3.9
SIC-20W	2.3~3.8	3.7~4.4	3.3~4.3	4.0~5.4
SIC-25W	2.3~3.7	3.7~4.3	3.3~3.5	4.0~4.2
SIC-30W	2.3~3.6	3.7~4.2	2.6~4.4	2.6~4.4
SIC-40W	2.3~3.1	3.7~3.9	2.6~3.8	2.6~3.8
SIC-45W	1.9~3.7	4.2~5.0	3.1~4.1	3.1~4.8
SIC-50W	1.9~3.6	4.2~4.8	3.2~4.0	3.2~4.7

The Unit of values above is: bar 1bar=1kg/cm²

Note: 1) For operation pressure lower than reference value, motor of water pump may be burnt out due to large flow.

2) For operation pressure higher than reference value, it is necessary to replace water pump to keep a high pressure.

- 3) Turn on the compressor.
- 4) Set process water temperature (Neglect this step if temperature is already set). Press ▲ ▼ to increase or decrease water temperature. For this series of water chillers, process water temperature should be set as 7°C (never set below 4°C).
- 5) Anti-freezing setting: anti-freezing switch equipped (setting value 4°C). When process water temperature is lower than 4°C, the compressor will stop working.



Note!

Pump rotating direction should be correct.



Note!

Before starting the system, make sure that cooling water pump is turned on. Check the water tank of the chiller, do not start the machine when there is no water left in water tank. We shall not be liable for any damages caused by this reason.



Note!

In order to reduce the possibilities of machine damage and prolong the life, start the machine with correct methods.



Note!

Temperature setting value should not be lower than 4°C. Temperature of anti-freezing switch and high and low pressure switch is already set before delivery. We shall not be liable for any damage caused by unauthorized change of the setting.

4.3 Machine Shut Off

- 1) Turn off the compressor.
- 2) Turn off the pump.
- 3) Turn off the main switch.



Note!

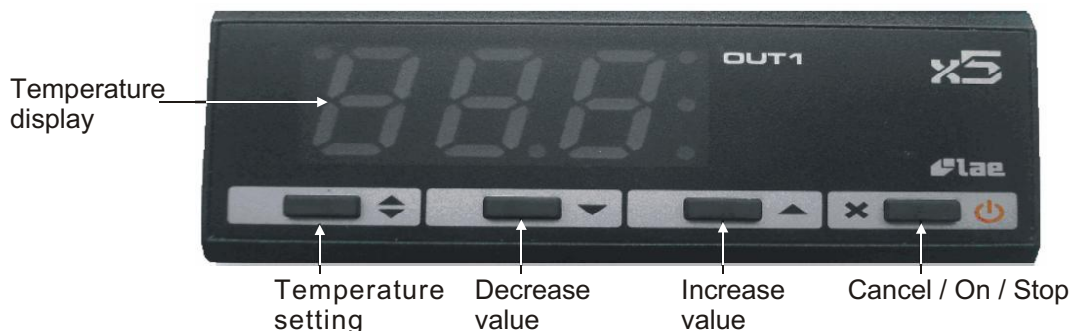
Avoid electrical shock when main switch is turned on.



Note!

In order to reduce the possibilities of machine damage and prolong the life, shut off the machine with correct methods.

4.4 Temperature 1 (Used for 3HP-15HP)



4.4.1 Temperature setting method

Limits of SPL and SPH for setting points exist in any condition and set through $\blacklozenge+x$ to acquire values of SPL and SPH.

Notices: all parameters must be reset when temperature unit changed.

4.4.2 Parameter Value Setting

S/No.	Parameter Code	Parameter Significance	Value Setting	Remark
1	SCL	Temperature unit 1°C: Display without radix point 2°C: Display with radix point °F: Fahrenheit	2°C	Unit: °C °F
2	SPL	Minimum temp. Setting	7	Unit: °C
3	SPH	Maximum temp. Setting	35	Unit: °C
4	1Y	Control method Hy: control by switch PID: control by PID	HY	
5	1HY	Lagged value	1	Unit: °C
6	1CT	Control cycle time	120	Unit: S
7	BAU	Exit / Enter menu setting	NON	NON: Exit

Remark : Above parameter only available for temperature control model: LTR-5CSRE. Can't be used for other models.

4.4.3 Parameter setting method

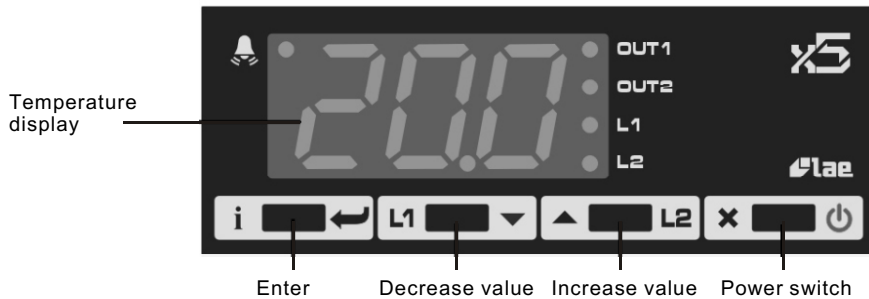
When to setup, (user shall) continuously press buttons $\blacklozenge+\times$ for over 5 seconds at the same time. When adjustable parameter at first level appears, switch it to the setting of parameter at next level through pressing button \blacktriangledown and return it to previous level by pressing button \blacktriangle . Press button \blacklozenge to display parameter value and press $\blacklozenge+\blacktriangle$ or $\blacklozenge+\blacktriangledown$ simultaneously to change values. Press \blacklozenge to confirm it and continue the next setting.

It will automatically quit parameter setting after 30S of no keyboard input.

4.4.4 Code meanings

---	Power supply self-test status (3S)	E1	Self setting time 1 error
5.4	Display of actual temperature	E2	Self setting time 2 error
Or	Sensor breaks	E3	Self setting time failure
Tun / 5.4	Process of PID self setting	OFF	Controller standby

4.5 Temperature 2 (Used for 20HP-50HP)



4.5.1 Temperature setting method

Under normal working condition, press **L1** for 2 seconds and it shows "1SP" and get into temperature setting interface. Use **L1** and **L2** to set the temperature and **i** to confirm it.

4.5.2 Parameter value setting








S/No.	Parameter Code	Parameter Significance	Value Setting	Remark
1	SCL	Temperature unit 1°C: Display without radix point 2°C: Display with radix point °F: Fahrenheit degree	2°C	Unit: °C °F
2	SPL	Lower limit of temperature setting	7	Unit: °C
3	SPH	Upper limit of temperature setting	35	Unit: °C
4	1SP	Set value of OUT1	7	Unit: °C
5	1CM	Control mode HY: By switch PID: By PID	HY	
6	1CH	OUT1 control mode REF: Cooling HET: Heating	REF	
7	1HY	Output value of OUT1	2	Unit: °C
8	1T0	Min. break time of OUT1	0	Unit: m
9	1T1	Min. opening time of OUT1	2	Unit: m
10	1PF	OUT1 failure output state	OFF	OFF: Close at OUT1 fault ON: Open at OUT1 fault
11	2SM	OUT2 output mode ABS: absolute value output REL: relative value output	REL	

S/No.	Parameter Code	Parameter Significance	Value Setting	Remark
12	2DF	Temperature difference compared with OUT1	2	Unit:℃
13	2CH	OUT2 control mode REF: Cooling HET: Heating	REF	
14	2HY	Output value of OUT2	2	Unit:℃
15	2T0	Min. break time of OUT2	0	Unit:m
16	2T1	Min. opening time of OUT2	2	Unit:m
17	2PF	OUT2 failure output state	OFF	OFF: Close at OUT2 fault ON: Open at OUT2 fault
18	RLO	Min. measured value of sensor	-19.9	Unit:℃
19	RHI	Max. measured value of sensor	99.9	Unit:℃

Notes: 1. Parameter in the table are suitable for AC1-5TS2RW-A edition, but not available for other models and editions.

2. For SIC-40P/45P/50P, set value for 1T1 and 2T1 is 0.

4.5.3 Parameter setting method

1. Press  and  at the same time.
2. Get into the setting menu after about 10 seconds.
3. Press  to switch to the next menu.
4. Press  and set value of the selected menu will be shown in the screen.
Press  and  to change value
5. Press  to exit.



Remark !

Parameters are set before delivery, please don't reset unless any special instance.

4.5.4 Attachment

1. Different models of temperature controller

The old model: MTC12T1RD/3



The new model: AC1-5TS2RW-A



2. Distinction of circuit connection

2.1 With the same output state, the new temperature controller can replace the old one. As power supply for the old one is 12VAC, a transformer should be equipped to convert power from 230VAV to 12VAC for it. The transformer must be removed because power supply for the new temperature controller is 230VAC. The wiring terminals are 6 and 7 instead of 8 and 9.



Circuit connection for old one



Circuit connection for new one

2.2 With the same output state, the new temperature controller can replace the old one. The two output points have connections that are normally open. Terminal 1 and terminal 2 are connected with OUT1, and terminal 4 and terminal 5 are connected with OUT2. For the new one, Terminal 1 and terminal 3 are connected with OUT1, and terminal 4 and terminal 5 are connected with OUT2.

Application and Operation



Output terminals for old one



Output terminals for new one

2.3 With the same output state, the new temperature controller can replace the old one. What should be noticed is that the old one connects the temperature sensor by terminal 11 and 12, and terminal 10 and 11 for the new one.



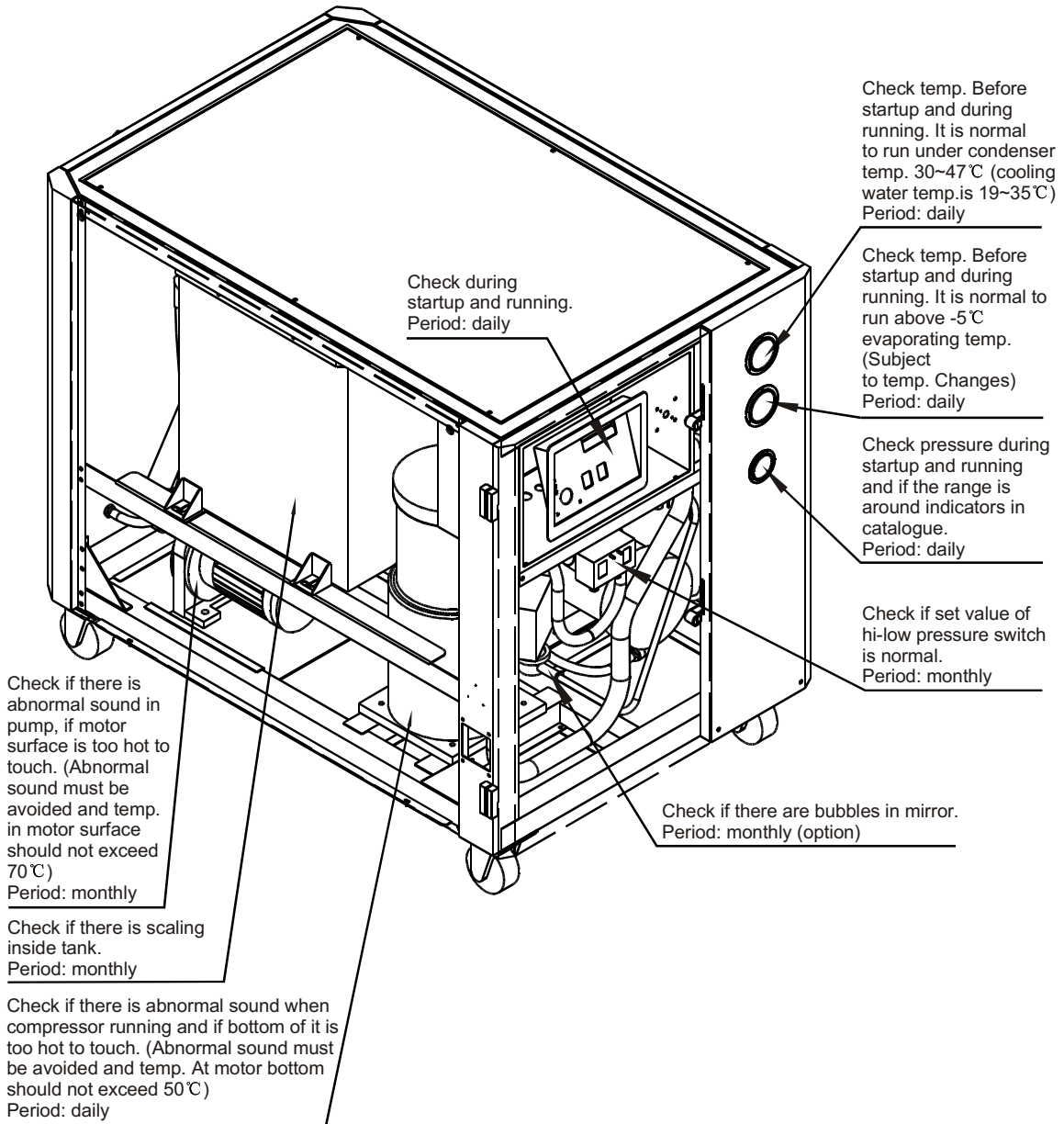
5. Trouble-shooting

Faults	The action of the protection units	The possible fault analysis	Solution
1. No power supply display or phase reversal	The protection units have no action	<ul style="list-style-type: none"> A. The power supply is not switched on B. The fuse wire of the control loop is burned out C. The linear ordering of the power supply is in the reverse order D. The fault of the main switch or circuit 	<ul style="list-style-type: none"> A. Power on after checking B. Check the protection loop C. Change the wires in order of two random power supply wires D. Check or replace
2. The pump over loading	The loader trips	<ul style="list-style-type: none"> A. Over current. B. The fault of the pump C. The fault of the pump over loading controller 	<ul style="list-style-type: none"> A. Reset the over loader B. Replace after checked and repaired C. Replace after checked and repaired
3. The compressor over loading	The loader trips	<ul style="list-style-type: none"> A. Over current. B. The fault of the compressor C. The fault of the compressor over loading controller 	<ul style="list-style-type: none"> A. Reset the over loader B. Replace after checked and repaired C. Replace after checked and repaired
4. The high pressure is too high	The high pressure switch trips	<ul style="list-style-type: none"> A. The refrigerant is too much B. The amount of blast to the condenser water is not enough C. The sediment incrustation of the condenser is too much D. The dry filter is blocked up E. The open scale of the expansion valve is too narrow F. The fault of the expansion valve G. The fault of the fan G. The fault of the high pressure switch 	<ul style="list-style-type: none"> A. Reclaim some of the refrigerant B. Increase the amount of blast to the condenser C. Clean the condenser D. Clean or exchange the dry filter E. Adjust the open scale properly F. Replace after checked and repaired G. Replace after checked and repaired H. Replace after checked and repaired
5. The high pressure is too low	The protection units have no action	<ul style="list-style-type: none"> A. The cooling is not enough. B. The vanes of the compressor are spoiled C. The amount of the cooling water is too big 	<ul style="list-style-type: none"> A. Increase the refrigerant B. Replace after checked and repaired C. Adjust the flow quantity of the water valve
6. The low pressure is too low	The low pressure switch trips	<ul style="list-style-type: none"> A. The refrigerant is not enough. B. The dry filter is blocked up C. The open scale of the expansion valve is too small D. The fault of the expansion valve E. The fault of the low pressure switch G. The low load of system F. The heat-exchange of the evaporator is not good 	<ul style="list-style-type: none"> A. Check the system pipe lines, weld pipe lines, and supply coolant. B. Clean the dry filter C. Adjust the open scale properly D. Replace after checked and repaired E. Replace after checked and repaired F. Washing the evaporator G. Increase load

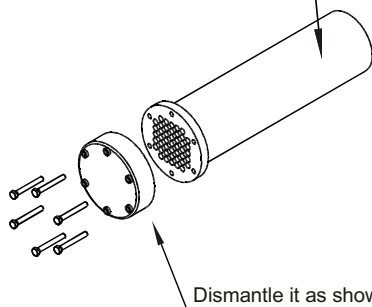
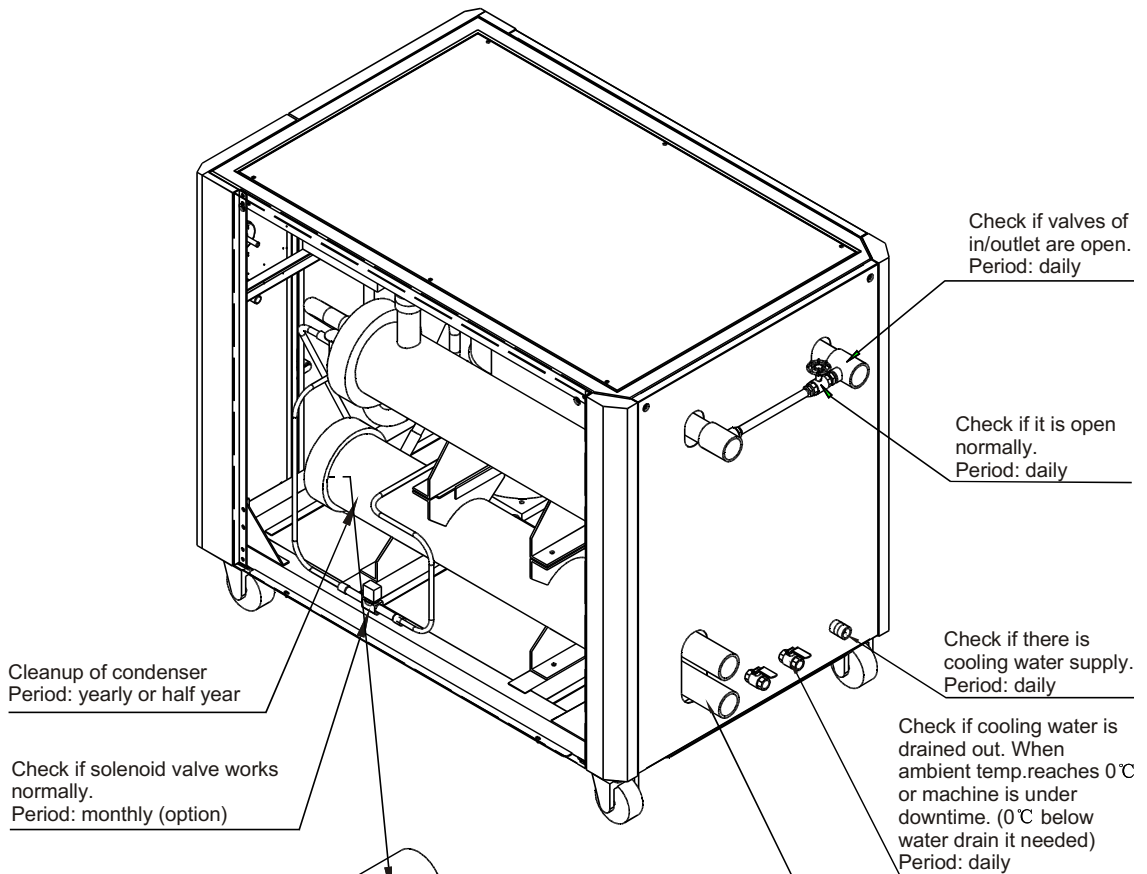
Trouble-shooting

Faults	The action of the protection units	The possible fault analysis	Solutions
7. The low pressure is too high	The protection units have no action	<ul style="list-style-type: none"> A. The cooling load is too big B. The power of the compressor decreases C. The open scale of the expansion valve is too big D. The packed weight of the refrigerant is excessive 	<ul style="list-style-type: none"> A. Adjust the load. B. Replace after checked and repaired C. Adjust the open scale of the expansion valve D. Discharge some of the refrigerant
8. The compressor overheat	The protection units have no action	<ul style="list-style-type: none"> A. The heat degree of the coolant in the air return pipe is too high B. The high pressure is too high C. The low pressure is too low D. Low load 	<ul style="list-style-type: none"> A. Adjust the open scale of the expansion valve properly B. Refer to high pressure is too high C. Refer to low pressure is too low D. Increase the load
9. The chassis of the air return pipe and the compressor frost over.	The protection units have no action	<ul style="list-style-type: none"> A. The open scale of the expansion valve is too big B. The refrigerant is too much C. The heat load is too small 	<ul style="list-style-type: none"> A. Adjust the open scale of the expansion valve properly B. Discharge some of the refrigerant C. Increase the load
10 The compressor can not start up or trips after starting up	The protection units have no action	<ul style="list-style-type: none"> A. The power supply wire is broken or the voltage is off normal B. The temperature control instrument is not set up properly C. The over loading protector is not reset 	<ul style="list-style-type: none"> A. Check and connect the wires according to Specifications B. Reset the temperature control instrument C. Reset the over loading protector
	The freeze protection switch trips	<ul style="list-style-type: none"> A. The ultra-low refrigerated water flow causes ultra-low water temperature B. The temperature control is set too low or has some faults C. The freeze protection switch is not properly set or has some faults 	<ul style="list-style-type: none"> A. Check the pump and discharge the air in the water pipe B. Correct the set point or change C. Check and repair
11 The cooling capacity can not get up to the standard		<ul style="list-style-type: none"> A. Over-scale in the evaporator B. Over-scale in the chiller C. The volume of refrigerated water is not enough D. Component is blocked up E. The configure of the cooling pump is not proper. F. Compressor is worn out F. The cooling water pipe is not configured according to the standard G. Expansion valve is broken 	<ul style="list-style-type: none"> A. Washing the evaporator B. Washing the cooler C. Increase the cooling water volume D. Dismounting out the filter, and clean it or change it E. Choose the pump up to the standard (flow quantity and delivery lift) F. Change the compressor G. Change the expensive valve

6. Maintenance and Repair



Maintenance and Repair



Use screw thread in this end. Also rod piece can be added based on the length of condenser so that brush moves freely to clean condenser inwall.



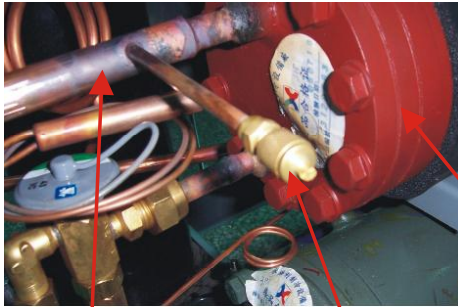
All repair work should be done by qualified personnel only to avoid damage to the machine or personnel injury.

In order to operate the machine rightly and safely, please caution the matter as follows:

- 1) Do not turn off the main power switch to stop the machine, except emergency situation.
- 2) When failures set in and the machine stop work with buzzer sound, first press down the main power switch of the machine (alarm indicator will die), then go to check the reason of the failures, do not force the machine on before remove the failures.
- 3) Please check periodically to prolong the life of the machine and prevent the safety accident to appear.
- 4) Water supply should be processed, because the high PH can corrode the copper pipe acute. This must reduce the life of the heating and cooling implement, PH of the water supply must be between 7.0~8.5.
- 5) Keep the machine room dry, clean and vent.
- 6) The operation and service of the machine should be done by qualified technician only.
(Please take notice that the disassembly and the inspection of the machines are hazardous when the machines are running!)
- 7) In order to make sure the chiller is under good working performance, the user should clean the condenser and evaporator timely to avoid furring accumulation, and affect its heat exchange.

6.1 Fill in The Refrigerant

- 1) Screw off the end cap of the liquid filling thimble valve, and connect the air suction pipe of the vacuum pump to the liquid filling thimble valve to take the vacuum pumping, and this process may take one to two hours.



The air return pipe The end cap of the liquid filling thimble valve The evaporation



The vacuum pump

- 2) After the vacuum pumping, connect the air pipe of the refrigerant tank to the liquid filling thimble valve, and fill the refrigerant into the air return pipe. Watch the change of the weight displayed by the electronic scale, and stop filling the coolants immediately when receiving the schedule weight. (Strictly prohibit to fill fluid coolant under machine is working)
 In the condition of the starting up, the shown pressure of the high pressure gauge should be about 13 to 15 bar; and shown pressure of the low pressure gauge should be about 3 to 5 bar. (Note: the temperature of the environment should be 30°C, and the temperature of the frozen water should be 20°C.)



The electronic scale The coolants tank
 SIC-W series filled weight



The model of the machine	The filled weight of the refrigerant(kg)	The model of the machine	The filled weight of the refrigerant(kg)
SIC-3W	1.5	SIC-20W	10
SIC-5W	2.5	SIC-25W	14
SIC-8W	3.8	SIC-30W	17
SIC-10W	5.0	SIC-40W	20
SIC-12.5W	7.0	SIC-45W	25
SIC-15W	8.5	SIC-50W	34



Note!

- 1 Please do not replace refrigerant arbitrarily.
- 2 Please do not replace components in refrigeration system.
- 3 Medium is water. Please consult manufactures if using other mediums.

6.2 Maintenance of The Subassemblies

6.2.1 The Condenser

The SIC-W series use the full liquid tube-in-shell condenser, and the outer flank of the heat emission pipe will pile up a great deal of water incrustation after a long time use, which will influence the heat emission effect, so it is necessary to clean the condenser at fixed periods in order to keep its working performance. Open the end cap of the condenser and scour the dirt on the heat emission pipe with a brush.



Note!

Drain the water inside the condenser away, when the machine stop running under 0 °C.

Disconnect the process pipe lines, and lift up the forepart of the machine by forklift, to prompt the water out of condenser.

Because impurities in the water inevitably deposited on the condenser wall, the condenser water flow will become smaller and smaller with the increase of deposition of impurities. And the efficiency of heat transfer will be getting lower and lower. In order to maintain the efficiency of the condenser heat transfer, the condenser inside must be kept clean and smooth. So it requires to be cleaned by mechanical or chemical methods.

1. Mechanical cleaning methods

The mechanical method of cleaning condenser is to remove silt and dirt, the specific methods and steps are as follows:

- 1) Close the water supply valve of condenser, and unscrew the bolt on the condenser cover and remove the cover, the copper pipe exposed. Putting a round brush into the copper pipe and rotate it to wash off the sediment on the wall. Then pass into clean water to flush pipe. Finally re-fit end caps and bolt.
- 2) Use special piping gun for pipe cleaning.

Chemical cleaning methods

First, drain out the water inside the cooling system, wash away the sewage with clean water, then have it filled water again. Second, fill cleaner into cooling tower or water tank. put it aside for immersion or make it forced circulation. After washing the system, remove the liquid waste. Third, rinse with water 3~4 times to clean residue within the system, then you can put it into operation. Suppliers are responsible for selecting the type and quantity of the chemical cleaner (such as Dirt-restraint), cleaning time and safety measures.

6.2.2 The Evaporator

SIC-W series water chiller uses shell-and-tube evaporator. The outer flank of the heat emission pipe will pile up a great deal of water furring after a long time use of the evaporator, which will influence the heat emission effect, so it is necessary to clean the evaporator at fixed periods in order to keep its working performance. Open the pollution discharge porthole on the bottom of the evaporator and spray rinse the heat emission pipe from the outer flank to the inner flank, the water incrustation will be discharged from the pollution discharge porthole.



Note!

Drain the water inside the evaporator away, when the machine stop running under 0 °C.

Usually, evaporator use chemical cleaning methods, this operational process also applies to condenser's chemical cleaning.



Porthole

6.3 The Useful Life of The Key Parts of The Product

Name of the parts	Useful life
Pump	About 5 years
Compressor	About 5 years
Contactora	About 100,000 act

6.4 Maintenance Schedule

6.4.1 About the Machine

Model: _____ SN: _____ Manufacturing date: _____

Voltage: ___ Φ _____ V Frequency: ___ Hz Total power: _____ kW

6.4.2 Check after Installation

- Check the connection pipe is correct
- Check the connection pipe leaked or not
- Check the terminal of the jointing crack or not

Electrical Installation

- Voltage: _____ V _____ Hz
- Fuse melting current: 1 Phase _____ A 3 Phase _____ A
- Check phase sequence of power supply.

6.4.3 Daily Checking

- Check machine startup function.
- Check all the electrical wires.
- Check whether pressure gauges are accurate.
- Check whether compressor temperature is normal.
- Check whether cooling water circulation is normal.

6.4.4 Weekly Checking

- Check loose electrical connections.
- Check and clean Y type strainer.
- Check solenoid valve.
- Check motor overload and phase reversal alarm function.
- Check whether setpoint of hi-low pressure switch is normal.

6.4.5 Montly Checking

- Check the circulated pipe to see if there is any leakage.
- Check whether there are bubbles in liquid indicator.
- Check whether there is abnormal sound in pump.
- Check whether there is scale formation in tank.

6.4.6 Trimonthly Checking

- Check whether condenser is under blockage.

6.4.7 Half-yearly Checking

- Check damaged pipes.
- Check and clean Y type strainer.
- Clean solenoid valve.
- Check and clean filter and expansion valve.
- Check the whole machine condition.

6.4.8 Half-yearly Checking

- Check whether the contactor is normal.

6.4.9 Half-yearly Checking

- PC board renewal.
- No fuse breaker renewal.

Local Warranty Statement

1. Local warranty applies to the country of purchase only. Once the product is transited out of the country of purchase, this warranty is invalidated.
2. The warranty is only applicable to the original purchaser and in the country of purchase.
3. The warranty covers parts and labour only; and excludes freight and on-site call-out charges.
4. Your SHINI product is guaranteed against manufacturing defects for a period of twelve (12) months from the date of purchase locally unless stated otherwise.
5. The warranty shall immediately cease and become void if the product is found to have been modified or repaired by an unauthorized person.
6. The warranty is subjected to the following limitations and exclusions:
 - (a) Malfunctions or damages resulting from not complying with the recommended manner as outlined in our operation manual in relation with the application, installation, operation and maintenance.
 - (b) Defects from using wrong electrical supply, misuse or damage by negligence and abuse.
 - (c) Malfunctions or damages resulting from natural disaster, fire, civil unrest and / or accidents.
 - (d) Wear parts and accessories.
7. If your SHINI product is not the same place of purchase, you can still send the product to your local SHINI's branch or distributor for servicing at your full costs according to the individual country service policy.
8. If there is no SHINI's branch or distributor in your country, although obviously there is no warranty covered by SHINI, you may direct contact SHINI requesting for the supply of replacement parts at your full costs.
9. All the electricity installation ,connection and maintenance should be carried out by the specialists or contact SHINI or its local agents.

10. The warranty is deemed valid only if the followings are completely filled in:

Purchaser's name and address: _____

Your supplier's name and address: _____

(company stamp)

Product model: _____ Serial number: _____

Invoice Number: _____ Date of purchase: _____

Please send all queries and comments to:

Shini Plastics Technologies, Inc.

Corporate Strategic Center

Dalang, Dongguan, Guangdong, China

Tel: (0769) 8331 3588 Fax: (0769) 8331 3589

E-mail: shini@shini.com

www.shini.com



Main Product

- Drying & Dehumidifying
- Feeding & Conveying
- Dosing & Mixing
- Heating & Cooling
- Granulating & Recycling
- Automation System
- Hot Runner System
- System Solutions

SHINI PLASTICS TECHNOLOGIES, INC.

Headquarters:

Shini Plastics Technologies, Inc.
No.23 Minhe St., Shulin Dist., New
Taipei City 23852, Taiwan

Tel: +886 2 2680 9119

Fax: +886 2 2680 9229

email: shini@shini.com

shini.com

Factories:

- Taiwan
- Dongguan
- Pinghu
- Ningbo
- Mumbai