LS-85B(LY-85B)、LS-85(LY-85)

Cooling machine

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**After receiving the products, unpack and check if the products are damaged. If the products are damaged, contact the manufacturer.**

**1. Install attention**

1. The cooling machine must be installed in clean environment. Polluted environment will damage the machine.
2. The products are installed in the place with ventilation because this cooling machine is air-cooled cooling machine. It requires good ventilation and The products are installed in the place with ventilation because this cooling machine is air-cooled cooling machine. It requires good ventilation and keep proper distance away from surrounding objects. In summer, this cooling machine is placed in one crowded and stuffy workshop, The condenser cannot fully release the heat. Under such condition cooling effect is poor. It will cause safety protector to work (The cooling machine stops working ). Please keep ambient temperature below 40℃
3. Avoid being installed in direct sunlight. Keep proper distance away from any heat source, because of being exposed to the sun or near the stove, cooling effect is reduced.
4. Cooling machine is installed in the place where pipes can be connected conveniently. The length of pipe is shortened as much as possible. If the pipe is longer and more curved, more liquid will flow more difficultly.
5. If ambient temperature in workshop is higher than 40℃, it shall consider connecting one air supply pipe outside the workshop to help cooling down the workshop.
6. Avoid be installed in rain.

**2. Pipe connect**

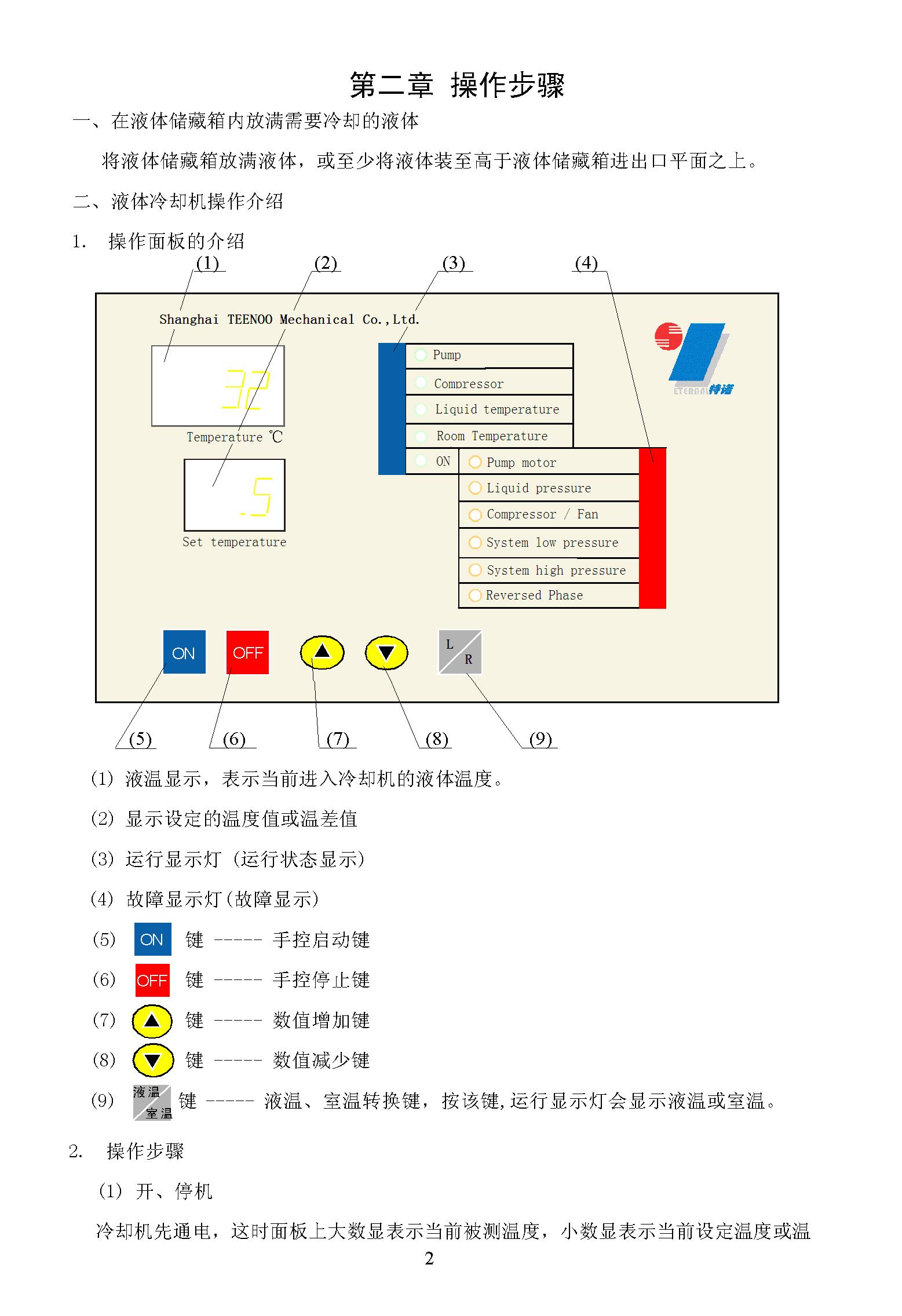
1. The pressure is adapted to withstand-pressure plastic hose. The pressure is adapted to withstand-pressure plastic hose.
2. Connect plastic hoses with inlet and outlet of cooling machine.
3. Connect the pipe as short as possible and use the elbow as little as possible

**3. Install electric wires**

1. The power network in workshop is used as much as possible for electrical wiring of cooling machine, e.g. switching power in machine tool. Pay attention to prevent from interference of power supply on cooling machine. During installation, the plug of cooling machine is inserted into the outlet on the wall. If terminal block is used, please pay attention to the capacity.
2. Use three-phase four-wire system and connect grounding wire additionally. If single-phase power supply is used, please connect grounding wire additionally after connecting power lead.
3. Connect power lead to junction box of cooling machine.
4. Install leakage protection device.

**4.Control panel operation**

1. Control panel



* 1. Current liquid temperature in cooling machine is shown on liquid temperature display.
  2. Set temperature value or temperature difference value.
  3. Running indicator lamp (display of running state).
  4. Fault indicator lamp (fault display).
  5.  ----- ON
  6.  ----- OFF
  7.  ----- Add the temperature of the liquid.
  8.  ----- Decrease the temperature of the liquid.
  9.  ----- When change over key of liquid temperature and room temperature is pressed, liquid temperature or room temperature is shown on running indicator lamp.(L: liquid temperature; R: room temperature)

1. Operation steps
2. Open/Close

After switching on the cooling machine, current measured temperature is shown in larger case on the panel and current preset temperature or temperature difference is shown in lower case on the panel. Temperature indicator lamp is ON. At this time, by external control wires, or   keys on computer panel, control start-up and shutdown of cooling machine.Either external control or manual control of computer panel is used for start-up and shutdown of cooling machine, that is to say, when using the former, the latter does not work, in reverse, when using the latter, the former does not work. After start-up, running indicator lamp is ON. After 5s delay, liquid pump works. Depending on measured liquid temperature, the compressor and fan work. If measured liquid temperature is higher than preset temperature, the compressor and fan will run together and enter into cooling operation. Without liquid pump, if measured liquid temperature is higher than preset temperature, after 5s delay, the compressor and fan will run together and enter into cooling operation. If measured liquid temperature is less than preset temperature, the compressor and fan will not run. Each time cooling machine is started and stopped, the compressor will run again after 3 minutes delay. In addition, the cooling machine can be shut down by turning off the power of the whole machine. However, it must pay attention that the computer has no 3-minute delay memory when restarting after power break down. If the cooling machine is stopped by power break down during the compressor is in operating condition, it must be restarted by power-on after waiting for 3 minutes.

1. Set temperature
2. For constant temperature-controlled temperature setting, in order to ensure the cooling machine runs stably and safely and avoid that the machine is damaged due to random operation of miscellaneous personnel, operation password is especially designed for preset temperature of computer control system of this cooling machine so that preset temperature cannot be changed randomly. Operation password: press key, key,key, at this time, P appears in temperature display window (some digit) to indicate that the temperature can be set. Presskey once to add the value 1℃ and presskey once to reduce the value 1℃; after finishing changes, presskey to reset and quit setting state. Setting or changing the data is finished.
3. For temperature difference controlled temperature setting, temperature difference control indicates one difference is kept between controlled liquid temperature and ambient temperature (range is -9℃~ +9℃)，that is to say, following relation is satisfied：preset temperature =liquid temperature –ambient temperature，minus indicates that liquid temperature is controlled below ambient temperature and other setting operation is the same with a.
4. Working principle of cold and warm type oil cooler: the range of setting cooling and running temperature is 18℃~50℃ and the range of automatically heating temperature is 10℃~15℃. If measured oil temperature is less than 10℃ after starting the oil cooler, oil cooler will automatically be heated to more than 15℃ and stop heating. When machine tool runs so that oil temperature rises to more than 18℃, the oil cooler enters into cooling running state.
5. High-temperature alarm temperature setting: this machine has the function of high-temperature alarm. When the cooling machine runs continuously within 50~60℃ more than 20 minutes, it may be shutdown and give the alarm. The users can self-set which point within 50~60℃ as alarm temperature. Press key, key, key and press  key again; at this time, E appears in temperature display window (some digit) to indicate that the temperature can be set. Presskey and key to set; after finishing setting, press  key to reset.

**5. Using attention**

1. During connecting water pipes, be sure to pay attention to watertight. Do not use it to cool down the oil.
2. Keep certain distance between surrounding objects and cooling machine for good ventilation that is helpful for heat emission.
3. Keep normal voltage and pay attention that abnormal voltage will cause cooling machine to be faulty even damaged.
4. Ambient temperature around the cooling machine cannot be too high. When ambient temperature is more than 40℃, the machine may shorten lifetime even be damaged.
5. Pay attention to watertight. If water splashes into electrical components, it will cause short circuit of electrical components or other faults.
6. The cooling machine without water pump must firstly be supplied with water and started.
7. If the cooling machine is not used for a long time:
8. Disconnect the power supply and connecting water pipes with the mainframe and drain remaining water in cooling machine. Then store the cooling machine in a cool and dry place.
9. Clean dirt in cooling machine; after spraying special cleaner on the detergent, clean it with water or long-haired brush. Please carefully wipe up other components in cooling machine. Be careful that water cannot splash into electrical components.
10. Store in clean and dry place.

**6. Cleaning and upkeep**

1. During cleaning filter screen of the condenser, it is often removed and cleaned with tap water. If there is serious pollution in workshop, it must be cleaned once every week. When oil stain is on filter screen, it shall be cleaned with detergent.
2. Clean the condenser; if dust and oil stain are accumulated in fins of condenser, heat exchange effect is reduced. If the pollution is serious, cooling system will be faulty and shutdown. Therefore, the condenser must be cleaned once every year. Please spray special detergent. Then clean it with long-haired brush. Then clean it with water or blow off dirt with compressed air.

**7. Maintenance**

1. When cooling machine is faulty, please contact the supplier for repair. Within warranty period, offer free repair. Beyond warranty period, repair expenses are charged.
2. When requiring repair, please offer following information:
3. Model and serial number of cooling machine.
4. Damaged reasons and components.
5. Simple troubleshooting: after liquid cooling machine is faulty, the faults can be shown by fault red lamps on computer panel so as to solve them accordingly.
6. After power on, liquid cooling machine will automatically run and start lamp is ON at the same time. But liquid cooling machine does not work. Or start lamp is ON and liquid pump runs without cooling function.

|  |  |  |
| --- | --- | --- |
| Fault | Phenomenon | Solution |
| Cooling machine does not work | Power phase is wrong and red lamp is ON | Correctly connect three-phase wires. If single-phase power is used, this fault does not exit |
| Liquid pump works and cooling system does not work. | Preset temperature is wrong | When liquid temperature is less than temperature setting, the compressor does not run and the preset temperature is reduced |

1. Cooling performance of cooling machine is poor。(Also working)

|  |  |  |
| --- | --- | --- |
| Fault | Phenomenon | Solution |
| Cooling effect is reduced | Ambient temperature is too high | Increase ventilation and reduce ambient temperature |
| Filter screen of condenser is too dirty | The motor of liquid pump does not run |

1. Cooling machine is fault.

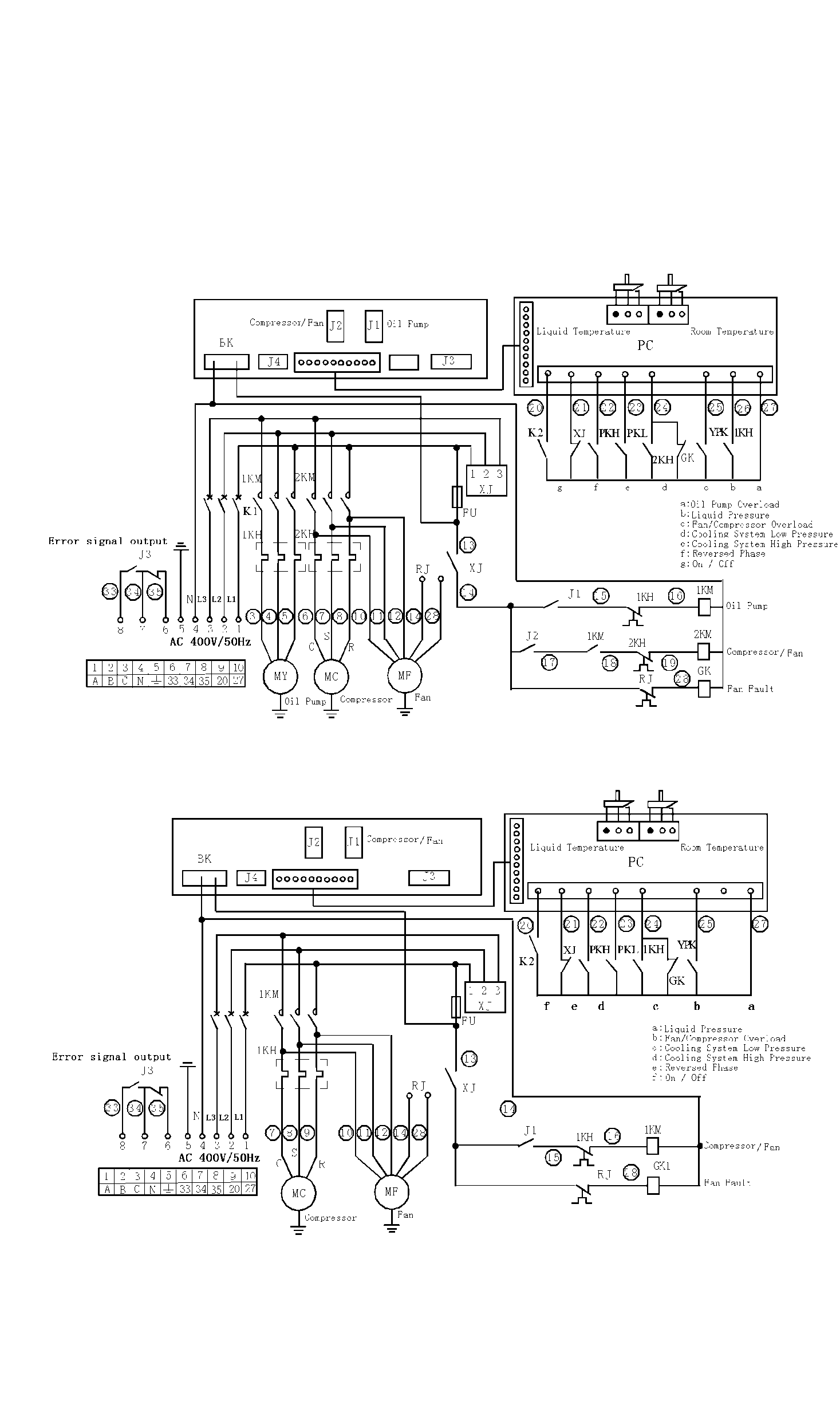
|  |  |  |
| --- | --- | --- |
| Fault | Phenomenon | Solution |
| The motor of liquid pump does not run | The motor is damaged and the wiring is not reliable and thermal overload protection works | Improve the wiring or replace the motor and check liquid circuit to find overload reasons |
| The compressor is shutdown | The wiring is not reliable and thermal protection capacitance is burnt out(The compressor has no three-phase voltage) | Check wiring or replace capacitance. or check if filter screen and fins of condenser are dirty and blocked and cleaned |
| High pressure of cooling system | Ambient temperature is too high and filter screen is too dirty and fan does not work | Clean filter screen and fins of condenser and increase the ventilation to reduce ambient temperature and check the fan |
| Low pressure of cooling system | The liquid does not flow smoothly and circularly and the fluorine leaks | Clean the filter to reduce resistance of pipe; detect leakage and replenish the liquid |
| Pressure of hydraulic system | The liquid does not flow smoothly or flow in liquid circuit and liquid outlet pipe is blocked | Check if liquid circuit is blocked and liquid pump runs |

When fault red lamp on computer panel is ON, the cooling machine must be normally started only after pressing  key or power break down.

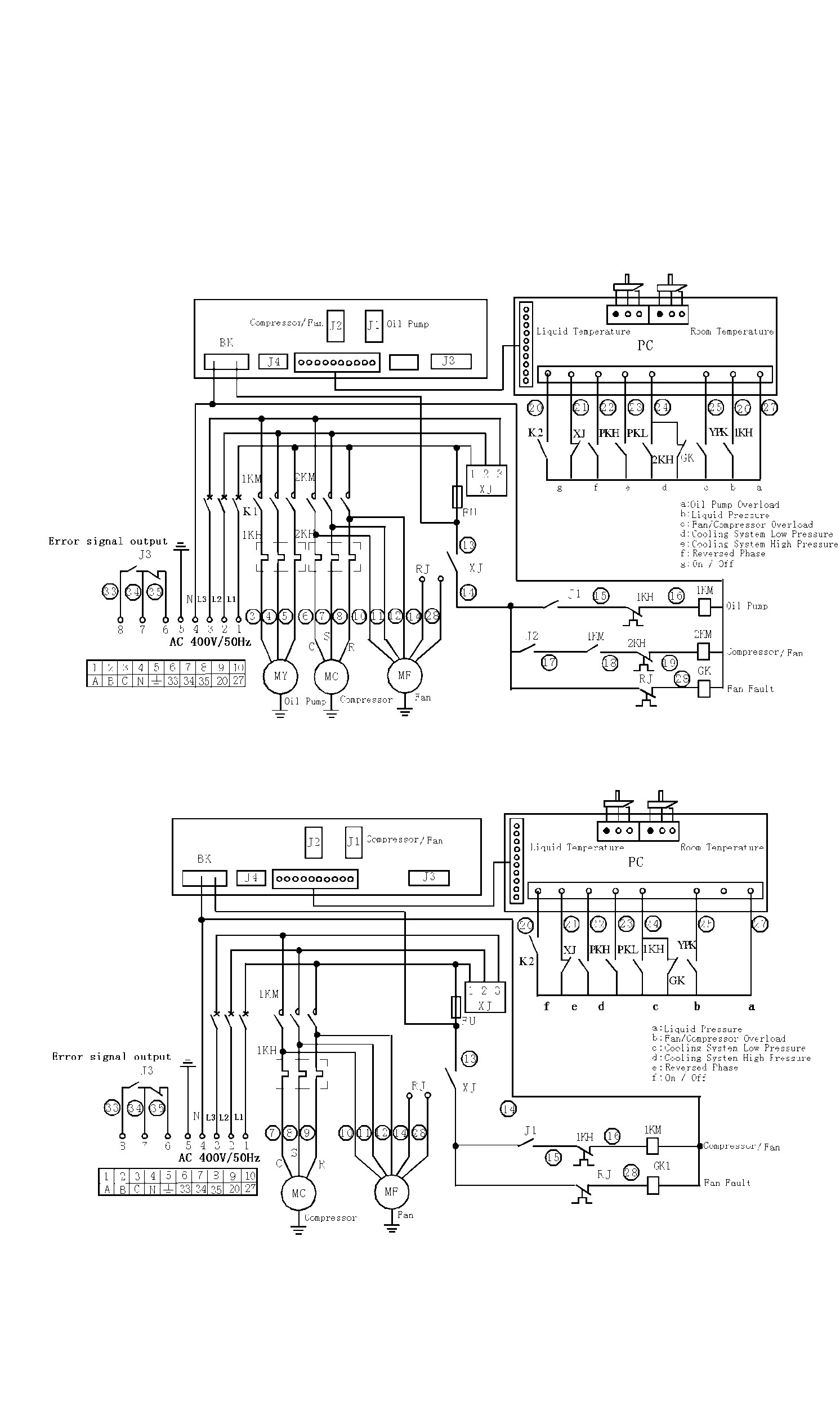
**8. Parameter**

|  |  |  |
| --- | --- | --- |
| Name | | LY-85 LY-85B LY-85BX |
| Refrigerating capacity(W) | | 8500 |
| Electric | Input | AC 400V 50HZ |
| Compressor | AC 400V 50HZ |
| Fan | AC 400V 50HZ |
| Pump | AC 400V 50HZ |
| Power  ( W ) | Total power | 3940 |
| Compressor | 2600 |
| Fan | 240 |
| Pump | 1100 |
| Rated current (A) | | 8 |
| Temperature extent ( ℃ ) | | 10-50 |
| Flow discharge（l/min） | | 50 |
| Refrigerant/ Weight（kg） | | R22/1.9 |
| Using  Extent | Ambient temperature | 10-40℃ |

**9. Electric schematic**



**INPUT:**



**INPUT:**

**10. Overall dimension**



|  |  |  |  |
| --- | --- | --- | --- |
| TYPE | A | B | C |
| LS85B（LS85B）  LY85(LY85) | 650 | 585 | 1150 |

**11. Transport method**

**Mode 1:**

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**Mode 2:**

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**12. Name plate**

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**13. Package**

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**十、Accessories**

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **amount** |
| **screw** | **M8×40** | **4** |
| **specification** |  | **1** |
| **pipe fitting** | **Z 1 1/2”** | **2** |