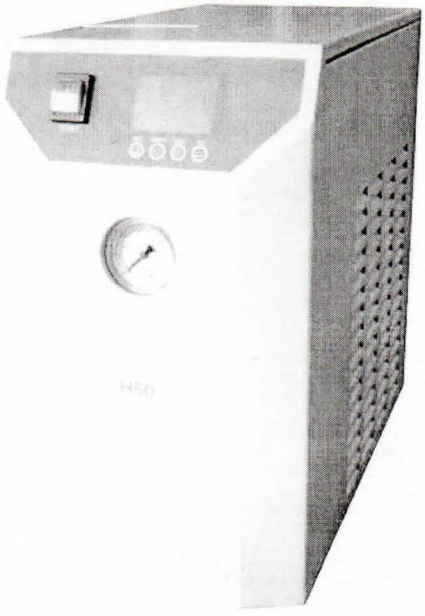
ISO 9001 CE



Water Chiller

H50

# USER'S MANUAL

# CONTENTS

# SECTION I SAFETY

## 1. WARNINGS

Make sure you read and understand all instructions and safety precautions list in this manual before installing or operating your unit. If you have any questions concerning the operation of your unit or the information in this manual, please contact our Customer Service Center.

## 2. PRECAUTIONS

Never place the unit in a location where excessive heat, moisture, or corrosive materials are present.

The unit construction provides extra protection against the risk of electrical shock by grounding appropriate metal parts. The extra protection may not function unless the power cord is connected to a properly grounded outlet. It is the user's responsibility to assure a proper ground connection is provided.

Never connect the inlet or outlet fitting to your building water supply or any water pressure source.

Never use flammable or corrosive fluids with this unit.

Do not use automotive antifreeze. Commercial antifreeze contains silicates that can damage the pump seals. Use of automotive antifreeze will void the manufacturer's warranty.

Transport the unit with care. Inclination angle must be less than 60 degrees otherwise the refrigeration system would be damaged. Sudden jolts or drops can damage the refrigeration lines.

Pay attention to all warning labels and never remove warning labels.

Never operate damaged or leaking equipment.

Never operate the unit without cooling fluid in the reservoir.

Always turn off the unit and disconnect the power cord from the power source before performing any service or maintenance procedures, or before moving the unit.

Never operate equipment with damaged power cords.

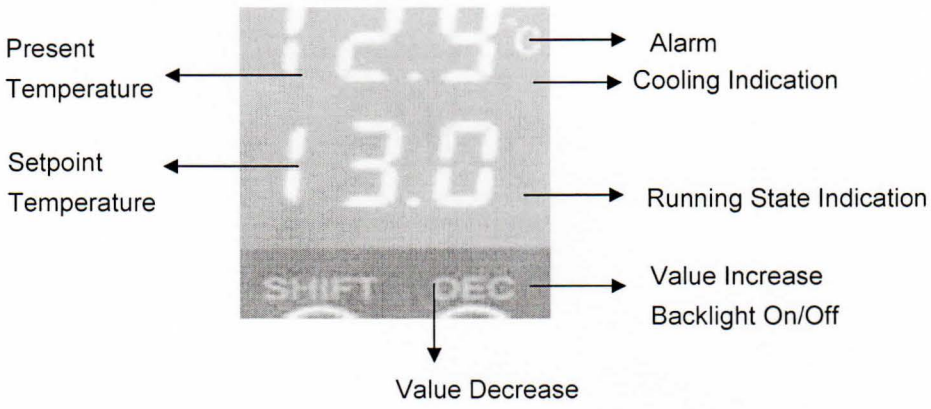
Performance of installation, operation, or maintenance procedures other than those described in this manual may result in a hazardous situation and may void the manufacturer's warranty.

# SECTION II GENERAL INFORMATION

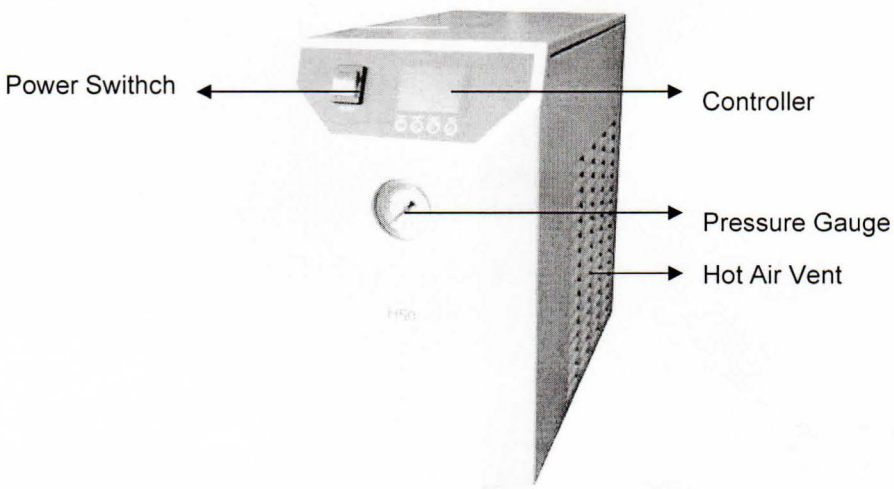
### 1. The controller panel

The controller consists of the following keys.

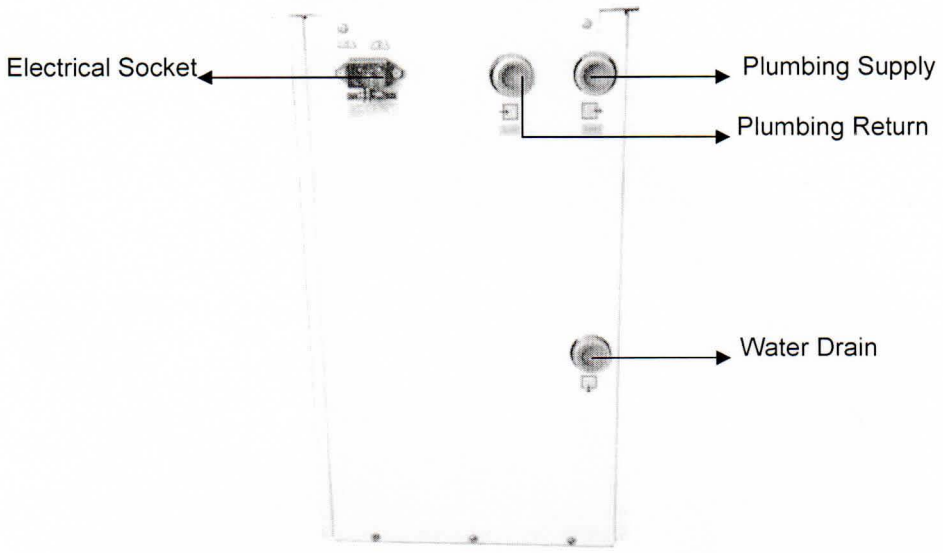
**For H50**




### 2. Front view



### 3. Rear view




### 4. Specification

| Model | H50 |
|---|---|
| Temp. control range /℃ | -5～35 |
| Temp. control mode | PID |
| Cooling mode | Compressor cooling |
| Refrigerant | R134A/R22 |
| Temp. Stability /℃ | ±0.3 |
| Cooling capacity / W@25℃ | 500 |
| Reservoir volume /L | 1.2 |
| Recirculating pump | DP60 |
| Pressure /MPa | 0.05 |

**NOTE:** The value of temperature stability is tested in standard operating mode.

# SECTION III INSTALLATION

## 1. LOCATION

The unit should be located in a clean environment where ambient temperature is between 10℃ and 35℃(50℉ to 94℉).

Never place the unit in a location where excessive heat, moisture, or corrosive materials are present.

The unit has an air-cooled refrigeration system. Air is drawn through the front of the unit and discharged through the rear and side panels. The unit must be positioned so the intake and discharge are not impeded. A minimum clearance of 3 feet (1 meter) on all vented sides is necessary for adequate ventilation. Inadequate ventilation will cause a reduction in cooling capacity and, in extreme cases, compressor failure.

Excessively dusty areas should be avoided and a periodic cleaning schedule should be instituted (see Section VIII, Maintenance). Optional air filters are available, contact our Customer Service Center.

The unit will retain its full rated capacity in ambient temperatures up to approximately 25℃ (77℉). Reduce the cooling capacity 1% for every 0.5℃(1℉) above 25℃(77℉), up to a maximum ambient temperature of 35℃(94℉).

## 2. ELECTRICAL REQUIREMENTS

The unit provides extra protection against the risk of electrical shock by grounding appropriate metal parts. The extra protection may not function unless the power cord is connected to a properly grounded outlet. It is the user's responsibility to assure a proper ground connection is provided.
The following power options are available:

| Model | Voltage/V | Frequency /Hz | Phase | Circuit Capacity/A | IP Degree |
|---|---|---|---|---|---|
| H50 | 220 | 50 | 1 | 6 | 20 |

The unit is attached with a piece of European Standard power cord. It is used to connected with power supply. Plug the cord into power supply on wall, and plug the rear into electric socket of the unit. Then the unit is ready to be used.

## 3. PLUMBING REQUIREMENTS

The plumbing connections are located on the rear of the unit and labeled "SUPPLY" and "RETURN". The connections are 1/2 inch Female Pipe Thread. Units with 1/2 inch fittings are supplied with 3/8 inch and 1/2 inch barbed adapters.

Remove the plastic protective plugs from both plumbing connections. Install the barbed adapters to these connections.

Connect the fitting "SUPPLY" to the hose feeding the inlet of your application. Connect the fitting "RETURN" to the hose from the outlet of your application. Clamp all connections.

Never connect the fitting to your tap water supply or any water pressure source.

**NOTE:** On units equipped with PO pumps, ensure your plumbing is rated to withstand 90 Psi at the highest operating temperature.

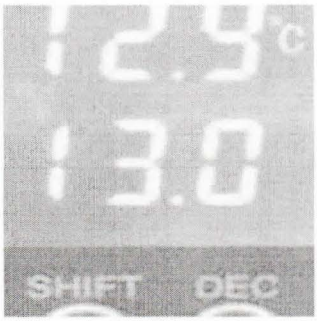
It is important to keep the distance between the unit and the instrument being cooled as short as possible. Tubing should be straight and without bends. If diameter reductions must be made, they should be made at the inlet and outlet of your application, not at the chiller.
When you want to change the fitting or keep the chiller idle for a long period, be sure to drain water out of the water tank. Shut down the unit at first, then put a cup on the ground, and open water drain outlet to let the fluids in reservoir flow out into the cup, at last close water drain outlet when there is no water in the reservoir.

**4. FLUIDS**

Never use flammable or corrosive fluids with this unit. Do not use automotive antifreeze. Commercial antifreeze contains silicates that can damage the pump seals. Use of automotive antifreeze will void the manufacturer's warranty.
Fluids should be pure, contain none of impurity such as grains. Otherwise, the impurity will be prone to damage the pump. Use of unpurged fluids will void the manufacturer's warranty. Fluids should be exchanged once every month.
Whenever fluid is exchanged, please kindly add water cleanser into fluid to keep cleaning. As for Smart SH150-Series, the volume is 1~2 drops.

# SECTION IV OPERATION

## 1. CONTROLLER




### *1.1 Change the set point*

Press **SET** to enter into temperature set interface, use ▽ △buttons to decrease or increase the temperature of setpoint. ◁ is a transposition key. Press **SET** again to save and quit the temperature set interface.

The controller will back to normal state if no operation in 1 min.

### *1.2 Alarm function*

**A. High-low temperature alarm**

Alarm code **L-A** will be displayed and buzzer alarm when the temperature is lower than the low temperature limit -10℃

Alarm code **H-A** will be displayed and buzzer alarm when the temperature is higher than the high temperature limit 50℃

While alarm, switch off the chiller and restart it to back to normal state.

**B. Water level alarm**

When the water level is lower than the limitation, the water level indicator will light up and the buzzer will alarm, system will also cut off the compressor and solenoid valve automatically. Fullfill the water tank, the compressor will restart after1 minute.

Note: Press any key can stop the buzzer.

## 2. PRESSURE RELIEF VALVE

The Pressure Relief Valve is used to adjust the unit's fluid flow/pressure.

**NOTE:** The valve is factory preset for the most common applications and normally requires no further adjustment. Also, the unit's pump is factory preset not to exceed 60 Psi (4.0Bar).

Before adjusting the valve turn the unit off. Locate the circular relief valve opening on the rear of the unit.

Turn the threaded stem fully counterclockwise.

If the unit is not plumbed to an application, install a loop of hose equipped with a shut-off valve between the supply and return fittings.

Turn the unit on.

Use the pressure gauge to read the relief valve setting.

Back out the threaded stem on the relief valve clockwise. Continue until the gauge indicates 60 psi (4Bar) or desired setting.
**NOTE**: The relief valve may drip if the threaded stem is backed out too far.

### 3. START UP/SHUT DOWN

Before starting the unit, double-check all electrical and plumbing connections. Have extra recirculating fluid on hand.

Place the switch located on the rear of the unit to the up position, the controller will flash and the unit will start up.

Place the switch located on the rear of the unit to the down position, the unit will shut down.

**NOTE**: If you want to turn on the unit at once after shut down, please wait for 10 seconds.

# SECTION V MAINTENANCE

### 1. RESERVOIR CLEANING

Periodically inspect the fluid inside the reservoir. If cleaning is necessary, flush the reservoir with a cleaning fluid compatible with the circulating system and the cooling fluid.
The cooling fluid should be replaced periodically. Replacement frequency depends on the operating environment and running time.
Before changing the cooling fluid ensure that it is at a safe handing temperature.
When you want to change the fitting or keep the chiller idle for a long period, be sure to drain water out of the water tank. Shut down the unit at first, then put a cup on the ground, and disconnect the fitting "DRAIN" on your application, let the fluids in reservoir flow out into the cup, and disconnect the fitting on our unit.

### 2. CONDENSER CLEANING

For proper operation, the unit needs to pull substantial amounts of air through a condenser. A build up of dust or debris on the fins of the condenser will lead to a loss of cooling capacity.
Optional air filters are available, if need please contact our Customer Service Center.
The lower front of the unit has a one-piece grille assembly. Using your hands gently pry the assembly off. Use care not to scratch the paint.
Periodic vacuuming of the condenser fins is necessary. The cleaning frequency depends on the operating environment. After initial installation we recommend a monthly visual inspection of the condenser. After several months, the cleaning frequency will be established.
Use care cleaning the condenser fins, they can easily bend.

### 3. PO Pump strainer cleaning

If debris is in the system, the strainer will prevent the material from being drawn into the pump and damaging the pump vanes. A clogged strainer will also cause increased discharge pump pressures.

After initial installation, the strainer may become clogged with debris and scale. Therefore, the strainer must be cleaned after the first week of installation. After this first cleaning, we recommend a monthly visual inspection. After several months, the cleaning frequency will be established.

PO pumps have a strainer located in the pump. Clean the screen by rinsing it with water. When the screen is clean, replace it in the strainer, tighten the fitting and replace the panel.

If water circuit of the unit is equipped with filter system, please change filter cartridge periodically.

# SECTION VI TROUBLESHOOTING

### 1. UNIT NOT START

Check the line cord; ensure it is plugged in.

Check the position of the circuit breaker on the front of the unit. It ought to be in upper position.

Check the Voltage of power supply.

**NOTE:** On units with a Low Flow Switch and configured to shut down with a low flow fault, several starting attempts may be necessary.

### 2. UNIT NOT CIRCULATE FLUID

Check the water level in reservoir. Fill, if necessary.

Check the instrument being cooled for restrictions in the cooling line.

Check the pump strainer.

Check the pressure gauge, adjust the relief valve as necessary.

### 3. INADEQUATE TEMPERATURE CONTROL

Verify the setpoint.

If the temperature continues to rise, make sure your application's heat load does not exceed the rated specification.

Make sure the air intake and discharge are not impeded and the ambient temperature does not exceed +35℃.

Make sure the condenser is free of dust and debris.

### 4. LEAKAGE

Since vapor always contained in the atmosphere, liquid water will occur outside the tube when the temperature of refrigeration system is lower than the ambient temperature, especially when the humidity of the atmosphere is high while the set point is lower, the liquid water will get more. To avoid such results, user should turn on the dehumidifier or set the temperature higher.

# List of packing

**Name:Recirculating Chiller** **Model: H50**

| No. | Item | Quantity | Remarks |
|---|---|---|---|
| 1 | Chiller | 1 | |
| 2 | Manual | 1 | |
| 3 | Power cable | 1 | |
| 4 | PTFE Raw Material Belt | 1 | |
| 5 | Hoop | 4 | Φ10-16 |
| 6 | Connector | 3 | Φ8 |
| 7 | Connector | 3 | Φ10 |
| 8 | Ball Valve | 1 | |
| 9 | water cleanser | 1 | |

**All of above is checked out**

**Checker:**