



TFLW Series Water Chiller For Laser Operating Manual

Please read this instruction manual carefully before using the equipment.

Thank you for using our products, in order to make full use of the chiller and get the best effect, please read this instruction manual carefully before using the equipment.

Preface

Thank you for using our products. Please read this instruction manual carefully before using the chiller and keep it properly for future reference.

This manual is not a quality certificate. Our company will account for typographical error corrections, information modifications and product improvements at any time, which are subject to change without prior notice. The modified content will be compiled in a new edition manual.

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Cautions

For your personal and property safety, you must follow the instructions contained in this manual when operating the chiller. The severity levels are marked from high to low as follows:



Danger Failure to follow the instructions can result in serious injury or death.

Operated by professionals



Must

Transport, piping, electrical connection, operation and maintenance must be carried out by professionals.

Never use over range



Forbidden!

Never use the device over the range of specification, to avoid serious accidents like mechanical damages, personal injury, fire, electric shock, etc.

Electrical connection



Must

- The connected power source must be compatible with the nameplate or the instruction manual.
- Make sure to use standard cables with wire diameter meeting relevant standard.
- Ground in installation to ensure reliable connection, otherwise there may be a danger of electric shock or fire.

Lifting



Lifting

- Make sure to use the supplied lifting rings or lugs.
- Keep well clear of the lifting chiller to avoid death or mechanical damages.

Never use in an explosive environment



Forbidden!

Never install in a dangerous place with flammable gas.

Never run without faceplates



Forbidden!

Don't operate the chiller without faceplates. Live parts can result in electric shock.

Waterproof



Forbidden!

Never expose the chiller to rain, otherwise there is a danger of short-circuit or electric shock.



Danger Failure to follow the instructions can result in serious injury or death.

Maintenance



Must

Switch off the power supply and wait for 5 min. before you begin the maintenance works. There is a risk of electric shock when working in a charged device or immediately when the device shuts down.

Scrapping



Must

The chiller should be disposed as industrial fuse under the guidance of professionals when reaching its service life.

Hot surface



Do not touch the hot surface. Also, any non-heat-resistant articles should be kept away to avoid personal injury or property loss.

High voltage



Touching live parts can cause serious injury or death.



Warning Any non-adherence may result in serious injuries or death.

Transport and installation



Must

The chiller should be fastened well during transport and installation to avoid the chiller from falling over.

Electric protection



Must

Power cable access end should be provided with electric leakage protector, overload protector according to the rated current on the nameplate.

Stop operation immediately when any abnormality arises



Must

When any abnormality arises, do not start the chiller before identifying the reasons, so as to avoid damage, electric shock, fire and injury.

Never put your hand or other items into the chiller



Forbidden!

Do not put your hand or other items into an operating chiller, because rotating parts inside the chiller can lead to personal injury.



Warning Any non-adherence may result in serious injuries or death.

Refrigerant leakage



Must

- a) In case of coolant leakage, please ventilate the place. It has the danger of anesthesia and smothering when full of the refrigerant
- b) Never contact with skin otherwise might cause frostbite.



Caution Any non-adherence may result in slight injuries and property loss.

Never transport with coolant



Forbidden!

Never transport with coolant to avoid mechanical damages

Applicable environment



Forbidden!

- a) Never use the chiller on such conditions as high temperature, high level of humidity, intense electromagnetic.
- b) The chiller must be installed in locations without direct sunlight or heat source

Before commissioning



Prompt!

- a) Make sure the water supply pipe is not blocked.
- b) Check the water pipe and pump for water and venting.
- c) Make sure the chiller is in a normal and safe state (i.e. there will be no accidents occurring), otherwise there will be mechanical damages and personal injuries.

Transport



Must

- a) The chiller should be fixed during transport to avoid moving caused by vibration and external force. The internal parts may be damaged in case of excessive vibration and external force.
- b) Do not tilt the chiller by more than 45 °, otherwise cooling system may fail.

Installation



Must

- a) The chiller must be installed horizontally, otherwise cooling system may fail.
- b) Under no circumstances should air inlet and outlet (within 1000mm) be obstructed, otherwise the cooling capacity will be reduced.

Stir the vane if idled for a long time



Prompt!

If the water chiller has not been used for a long period, the pump may be hard to start. In this case, please stir the vane of the motor slightly.



Caution Any non-adherence may result in slight injuries and property loss.

Never step on the device



Forbidden!

Do not stand or sit on the device, otherwise accidents like falling off or turning over may happen.

Periodically clean filter screen



Must

Clear the filter screen at least once a week. If the screen is blocked, cooling capacity will be reduced, increasing power consumption and even triggering alarm.

Surface cleaning



Must

- a) Please use cleanser that is non-corrosive to metal and plastic;
- b) Cleanser should be kept properly to avoid leakage;
- c) The cleanser container must be fully sealed to avoid danger.

Put on gloves during maintenance and cleaning



Prompt!

- a) The sharp edge of condenser fin can pose a risk of scratch.
- b) High temperature of compressor and cooling pipe can burn your skin if touch directly with your skin.

Anti-freezing



Must

When the chiller stops for a long time at an ambient temperature of less than 0°C, coolant inside the chiller should be drained away and blown with pressed air, otherwise the components and pipelines may have the danger of frost crack.

Anti-freezing control logic in winter (this function is not available for special models)



Prompt!

The chiller works as follows after switching on the power supply:

- a) Anti-freezing conditions: ambient temp. $< 10^{\circ}\text{C}$.
 - ♦ When the anti-freezing water temp is tested to be $< 5^{\circ}\text{C}$, pump automatically starts;
 - ♦ When the anti-freezing water temp is tested to be $< 3^{\circ}\text{C}$, electric heater in the tank automatically starts working.
- b) Ending conditions for anti-freezing:
 - ♦ When the anti-freezing water temp is $> 10^{\circ}\text{C}$, pump and electric heater stop.
 - ♦ When ambient temp is $\geq 11^{\circ}\text{C}$, anti-freezing logic is exited.



Notes on environmental protection

- a) It is recommended to use eco-friendly cleaning agent.
- b) Leak of refrigerant contained in the cooling circuit can contaminate the environment. Therefore, refrigerant must be recycled by professionals and cannot be emitted to the atmosphere.

1. Overview

Main application, working principle and system combination

This chiller is designed as cooling system for laser marking machines, laser engraving machines, laser cutting machines and laser welding machines. It provides the coolant with a constant and precise temperature for the above-mentioned applications.

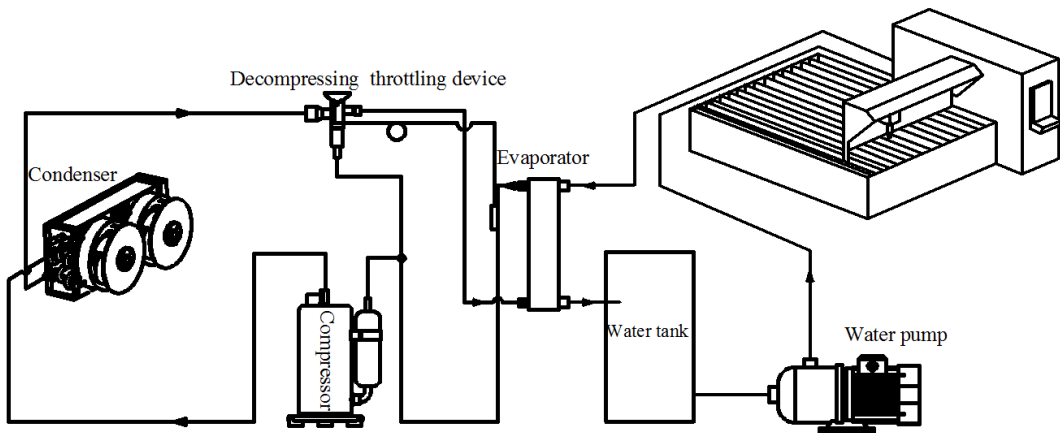


Fig. 1

【Functional diagram of the water chiller】

- Refrigerant absorbs heat from cooled substance inside the evaporator and be vaporized into steam, which is extracted and compressed by compressor. Then, the compressed gas under high temp and high pressure is sent to the condenser and releases heat to the cooling medium (e.g. water, air, etc), thus condensing into high pressure liquid. Under the effect of throttling valve, it enters evaporator and is vaporized again by absorbing heat from cooled substance. The whole process keeps circulating to realize refrigeration.
- Compressor: As the core component of the cooling system, compressor powers the compression of refrigerant by converting electric energy into mechanical energy.
- Condenser: Output heat energy during cooling process and condense the refrigerant.
- Evaporator: It is heat exchange device absorbing the heat of cooled medium via evaporation (actually boiling) of liquid refrigerant.
- Decompressing throttling device (expansion valve or capillary tube): In cooling system, it serves as flow regulating valve and throttle valve of the cooling device, mainly used to throttle and decompress liquid refrigerant.

- Refrigerant: As a heat carrier, refrigerant is a working medium which can absorb and release heat in change of state.
- Others: a fluid container and a filter dryer are possible as further equipment in the refrigerant system (no standard equipment of the small refrigerant system).

2. Working conditions

2.1 Environmental requirements

- Ambient temp.: 5 ~ 45°C
- Humidity: $\leq 90\%RH$
- Elevation: $\leq 3000m$
- Relation of cooling medium temp. to ambient temp. (See Fig. 2).

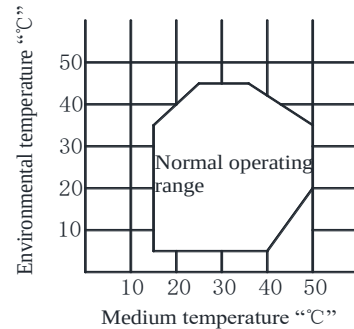


Fig. 2

2.2 Coolant

2.2.1 Applicable coolant

- Softened water (pure water, distilled water, high purity water)
- Anti-freezing agent (glycol with volume ratio $\leq 30\%$, ethanol with volume ratio $\leq 20\%$) is allowed to be added;
- Preservative, algicide which is accepted by the manufacturer is allowed to be added

2.2.2 Prohibited coolant

- Automobile antifreeze, long life coolant or antifreeze with volume ratio $> 30\%$
- Combustible fluids (e.g. acetone)
- Oil and oil-based fluids
- Medicine and food fluids
- Fluids with PH exceeding 6.5 ~ 7.5
- Fluids containing solids
- Fluids corrosive to copper or stainless steel

3. Model description

TFLW -2000W D R -01 -3385

(1) (2) (3) (4) (5) (6)

- | | |
|--------------------------|---|
| (1) Type: | Water chiller for laser |
| (2) 500W: | Applicable to 2000W fiber laser |
| (3) Sturcture: | D=Dual-temperature chiller
(No mark for single-tempeature one) |
| (4) Auxiliary functions: | R= with heating function |
| (5) Design version no.: | Be updated in case of great structural changes |
| (6) Power supply: | 3PH/220V/50Hz |

Notes: The model description contains main code description only, not list all. Please confirm with our company before ordering, we reserve all the right for the final explanation.

4. Installation and commissioning

4.1 Installation conditions and requirement

- ♦ It shall be installed horizontally and fixed with bolts. (See Fig. 3)

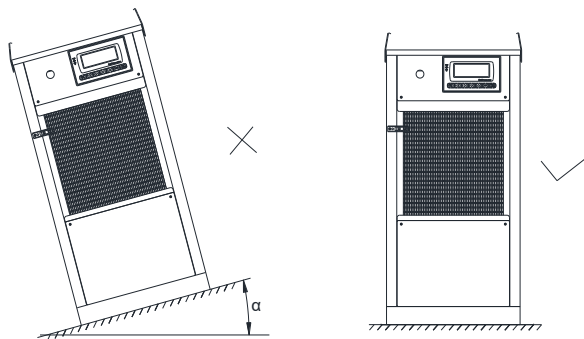


Fig. 3

- ♦ Under no circumstances should air inlet and outlet (within 1000mm) be obstructed, otherwise the cooling performance will be reduced (See Fig. 4).
- ♦ The chiller shall not be installed under such circumstances as corrosive or flammable gases, thick dust, oil mist, conductivity powder (carbon dust, metal powder), high level of humidity, high temperature and direct sunlight.

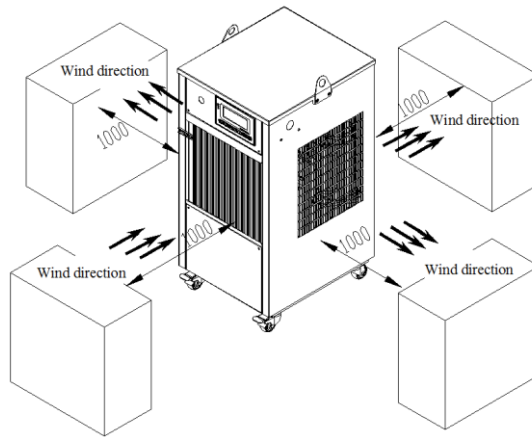


Fig. 4

4.2 Piping

- ♦ Pipes should be arranged in accordance with inlet/outlet labels on the chiller to ensure normal operation of the chiller.
- ♦ Make sure to keep clean in pipeline connection and prevent impurities from entering into the pipeline. Impurities inside the system can reduce cooling capacity and even damage oil pump or cooling system.
- ♦ Pipeline connection
- ♦ The chiller can be connected to the machine tool in accordance with Fig. 5.
- ♦ Pipe resistance: pipe connection shall be as short as possible to avoid right angle and bend.
- ♦ Air inside the pipeline can create irregular noise. Please vent from the highest point of the pipeline until noise returns to normal without bubbles.
- ♦ If metal pipes are used, heat preservation measures shall be taken to avoid energy loss.
- ♦ Pipeline bearing pressure should be over 1.5 times of the pump output pressure.

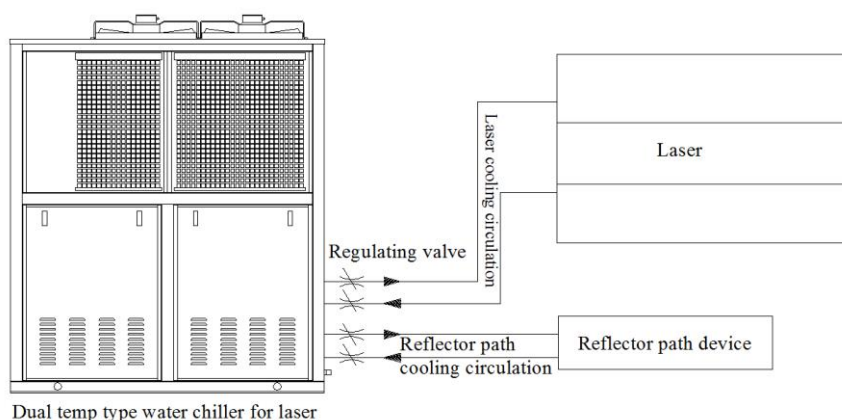


Fig. 5

4.3 Electrical connection

4.3.1 The wires shall be connected according to the wire marker on the machine.

4.3.2 Recommended nominal cross section of the lines:

Nominal cross section mm ² (copper wire)	0.75	1	1.5	2.5	4	6	10	16	25	35	50
Current-carrying capacity (A)	8.5	10.3	13.5	18.3	24	31	44	65	85	105	125

- The data, only for reference, is provided according to IEC 60204-1 laid with ambient 40°C B1.
- Power line must conform to relevant standards.
- For rated current of the chiller, please refer to the nameplate.

4.3.3 The main circuit of the power supply must be equipped with an electric leak and overload protection. The device must be grounded properly.

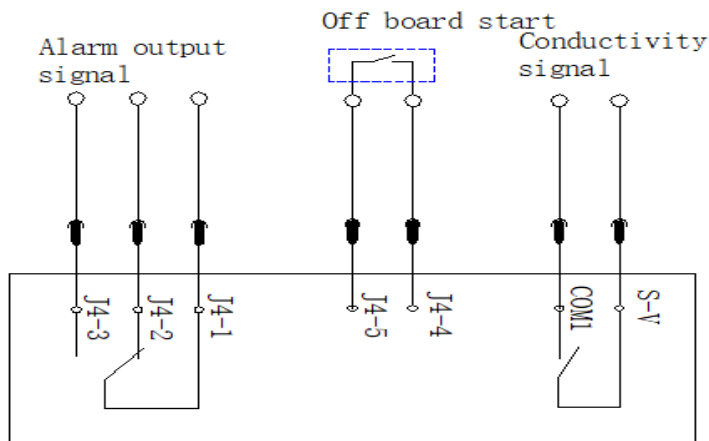
4.3.4 The permissible voltage fluctuation of the power supply must be less than $\pm 10\%$. The frequency fluctuation must be less than $\pm 1\text{Hz}$. The power supply shall be kept away from electromagnetic interferences.

4.3.5 Connection of signal terminals (applicable to standard models)

- ♦ Signal terminals J4-1/J4-2 are switched off and J4-1/J4-3 are switched on during normal operation;
- ♦ In case of alarm or shutdown, signal terminals J4-1/J4-2 are switched on and J4-1/J4-3 are switched off.
- ♦ Operational status of signal terminals:

Terminal	Shutdown	Standby	Error	Running
J4-1/J4-2	OFF	ON	ON	ON
J4-1/J4-3	ON	OFF	OFF	OFF

Remote control terminal (J4-4/J4-5): The chiller provides two remote control input terminals. When the working mode is set as “remote control”, the chiller will work automatically after the terminals are short-circuited and stop when such terminals are switched off.



Caution

These terminals must not be connected with active signals, otherwise it will damage the control.



Caution

Terminals marked with red dotted line are only available for a device with the function of conductivity detection.

4.4 Filling with coolant and venting

4.4.1 Filling with coolant

The filling level should be between the maximum and minimum quantity, as shown in Fig. 6.

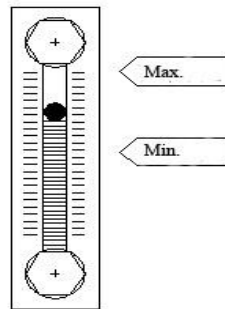


Fig. 6

4.4.2 Venting

When the chiller works for the first time, please exhaust air inside the pump, otherwise the pump will be damaged.

Venting method: unscrew the vent plug of the pump (don't screw off), vent the air until there is no air inside the pump, then screw up the vent plug (see Fig. 7, only vent position of vertical and horizontal pump are displayed, vent positions vary with customer's requirement and models, see the pump prompt for details).

Note: After switching on the power supply of the chiller, coolant fails to fill up the pipeline before the circulating pump starts working. Water pipeline can only be filled up after the pump is working. It is necessary to immediately refill coolant. Air inside the pump should be discharged continuously during operation.

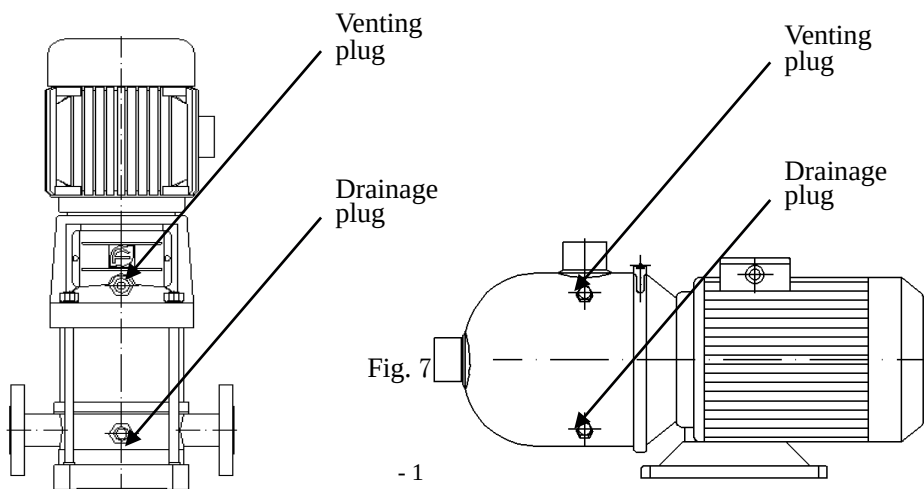


Fig. 7

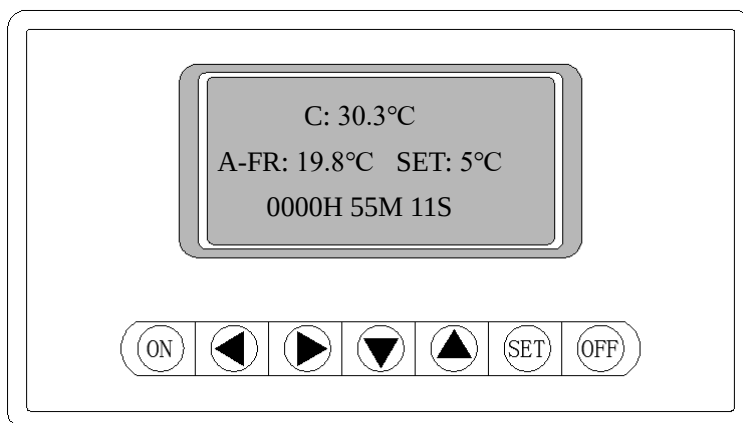
4.5 Check before commissioning

- ♦ Check the pipes and connecting pieces with regard to leakages or dripping.
- ♦ Observe the water level in the tank of the device.
- ♦ Check the power supply according to the nameplate.
- ♦ Ensure the electrical connections are correct.

4.6 Setting and operation of the control

4.6.1 Description of the control panel

♦ Control panel



♦ Button description

Button	Function
	Start the machine on manual and auto modes
	Switch to the second page in the main menu or return to the first page
	Switch to the second page or return to the first page in the main menu
	Scrolling forwards within a menu level or increasing the value by 1 during parameter setting
	Scrolling backwards within a menu level or reducing the value by 1 during parameter setting
	a) Press this key for 3s under standby interface to enter set interface. b) In set interface, press this key to save the modified parameters and jump to the next parameter automatically. When the last parameter is modified, the system returns to standby interface.
	a) Under manual or auto mode, press this key to stop the machine. b) When the alarm is triggered, press this key to silence the buzzer. After alarm is released, press this key for 3s for reset.

Operating scheme of the software of the water chiller.

The  button must be pressed after each parameter setting in order to save the modified parameters and to continue with the next step.

Press the  button in order to leave the menu without saving the modified values.

4.6.2 Operation

Recommended parameter values (to be adjusted depending on the situation)

Designation	Value	Unit	Recommended
Working mode	Manual/Auto/Remote Start	— —	Manual
Low-temp. water preset	Lower limit – Upper limit	°C	20.0
High-temp. water preset	Lower limit – Upper limit	°C	30.0
Lower limit of alarm temp.	Invalid, 0.0~14.0	°C	10.0
High limit of alarm temp.	Invalid, 41.0~50.0	°C	45.0
Anti-freezing temp. alarm	Invalid, 3.0~15.0	°C	5.0
Language	CN/EN	— —	

Start of the water chiller: When the manual mode is active, press “ON” to start the chiller. The circulation pump starts immediately. With a hysteresis of 3 min., the cooling process starts working if the water temperature is higher than the setting value.

Stop of the water chiller: Press “OFF”, the chiller stops operation immediately.

Display operating time: When the chiller is working, press  to show the flow rate and press  to show the operating time and temperature.

LT Water Flow Rate: 28.5L/MIN

HT Water Flow Rate: 2.9L/MIN

Notes: when the flow monitoring adopted switching value, the above is not shown.

C: 30.3°C

A-FR19.8°C SET: 5°C

0000H 55M 11S

5. Maintenance

Switch off the power supply and wait for 5 min. before you begin the maintenance works. When the chiller stops for a long time at an ambient temperature of less than 0°C, you must drain away the water inside the chiller.

5.1 Weekly

Weekly inspection is a major part of the routine maintenance. Operation, vibration, noise and operating data should be analyzed for potential safety hazards.

Weekly inspection mainly include:

- Check filter screen and clean the dust (see Fig. 8);
- Observe the level in the tank and fill coolant in case of a low level;
- Clean the chiller surface.

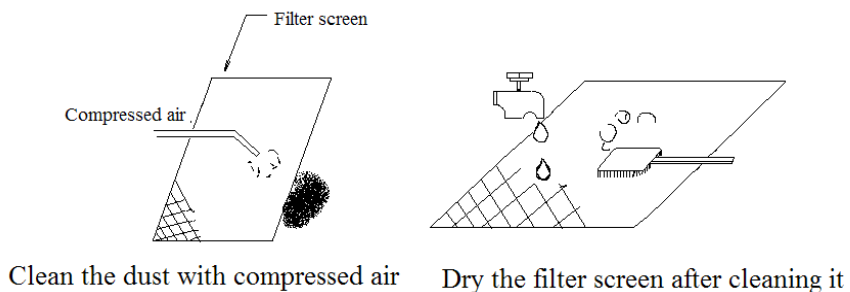


Fig. 8

5.2 Monthly

In the last week of each month, monthly inspection needs additional procedures, including:

- Check connections and the circulating pump for noise level. Please contact the manufacturer in case of abnormal noise, leakage or dripping;
- Check the fan and compressor and contact the manufacturer for abnormal

noise.

- c. Check and clean the internal filter (see Fig.9 Example filter).

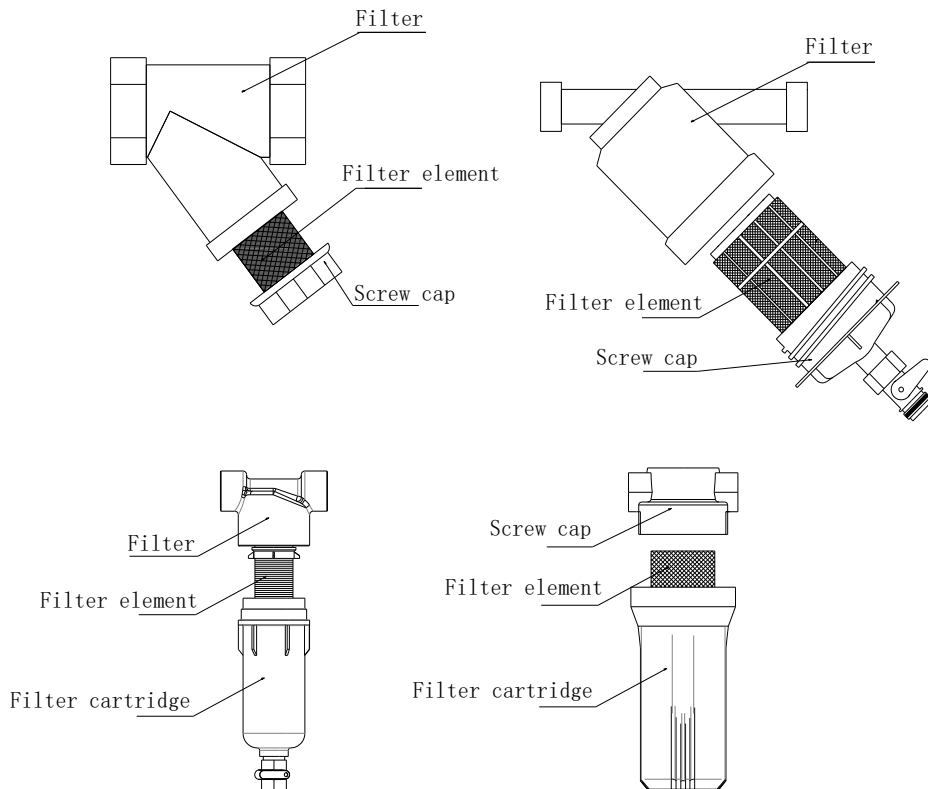


Fig. 9

5.3 Semiannually

Semiannually inspection is required to fulfill the following tasks:

- a) Replace the coolant.
- b) Check and clean the tank to ensure good cooling capacity.

5.4 Annually

The yearly inspection is generally done when the chiller stops running and there is a need for maintenance. Problems that cannot be detected or solved online during the daily operation will be handled during the yearly inspection.

- a. Check and clean the condenser;
- b. Check pipeline connection and pump for leakage;
- c. Dedust inside and outside of the chiller;
- d. Check and clean the water tank;
- e. Replace the coolant;
- f. Measure the insulation resistance, which should be $\geq 5\text{M}\Omega$;
- g. Check the grounding resistance, which should be $\leq 4\Omega$;
- h. Capacitance value used on motor component should be tested; capacitor should be changed if the value attenuation is larger than 10%.

6. Error messages and troubleshooting

Error messages	Causes	Troubleshooting
00 phase sequence error	a) Phase sequence error b) Phase defect of the power source c) Asymmetry of the 3 phases d) Damage to the phase sequence protector	a) Swap two phase wires randomly b) Check the power circuit c) Check the power source d) Change the phase sequence protector
01 compressor thermal relay alarm	a) Power failure b) Overload of the compressor c) Overload of the fan d) Overload of the agitator motor	a) Power failure b) Overload of the compressor c) Overload of the fan d) Overload of the agitator motor
02 high-pressure alarm	a) Ambient temperature too high b) Filter of the air inlet blocked c) Overload due to a too high fluid temperature d) Failure of the fan	a) Vent in order to reduce to ambient temperature b) Clean filter and fan c) Reduce the fluid temperature and the load d) Replace the fan
03 low-pressure alarm	a) Blockage of water circuit b) Fluid temperature too low c) Ambient temperature too low d) Leakage of refrigerant e) Incorrectly set pressure controller	a) Check the pipe with respect to blockage b) Increase the set temperature c) Regulate the ambient temperature to >5°C d) Check if there is a leakage and refill refrigerant, if necessary e) Set the pressure controller
04 high-temperature fluid circuit alarm	a) Too little water inside the water circuit b) Blockage of pipe	a) Refill water b) Check if the pipes are blocked
05 low-temperature fluid circuit alarm	a) Too little water inside the water circuit b) Blockage of pipe	a) Refill water b) Check if the pipes are blocked
06 heating high pressure alarm	a) Too little water inside the system cycle b) Blockage of cooling system pipeline	a) Refill water b) Check the cooling system for blockage

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Error messages	Causes	Troubleshooting
07 alarm in case of a too high ambient temperature	a) Too high ambient temperature b) Incorrectly positioned ambient temperature sensor c) Damaged ambient temperature sensor	a) Vent in order to reduce the ambient temperature b) Check the position of the ambient temperature sensor c) Replace the ambient temperature sensor
08 too high water temperature	a) Cooling capacity too low, unsuitable device type b) Error of temperature probe c) Missing amount of water d) Poor ventilation e) Leakage of refrigerant	a) Choose another device type b) Check the temperature probes and the wiring c) Clean the filter and the pipelines d) Clean the condenser filter e) Check if there is a leakage, refill refrigerant
09 anti-freeze alarm	a) Blockage of the pipeline b) Too little water inside the system cycle c) Anti-freeze alarm temperature set too high	a) Check the pipeline b) Refill water c) Set the anti-freeze alarm temperature to a lower value
10 alarm of the pump thermal relay	a) Abnormal power voltage and phase failure b) Blockage of the pipeline c) Insufficient quantity of water in the tank d) Damaged circulation pump	a) Check the reasons for alarm, and press the reset button b) Replace the pump c) Clean the surroundings to leave enough space for ventilation d) Fasten the screws
11 alarm of the probe	a) Temperature sensor error	a) Check the temperature sensor and wiring
12 alarm of high conductivity	a) Poor water quality	a) Check the water quality b) Replace pure water
Nothing is displayed on the control panel after the device is switched on	a) Power failure b) Loose electrical connections c) Defective supply transformer	a) Check the power supply b) Fasten the connections c) Replace the transformer
The control panel works, but the device does not work	a) Miniature circuit breaker is blown b) Too low voltage c) Defective supply transformer	a) Switch on the miniature circuit breaker again b) Specify the voltage $\pm 10\%$ c) Replace the transformer

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Error messages	Causes	Troubleshooting
Pump does not work correctly: ♦ Insufficient flow rate ♦ Pump is noisy ♦ Air in the system	a) Water inlet/outlet are reversely connected b) Loose suction pipe c) Blockage of hoses or filter d) Too thin or too long pipes cause a (too high) pressure loss e) Too high viscosity or too low fluid temperature f) Pump failure	a) Correctly connect water inlet/outlet pipeline b) Check the suction pipe and seal the leakage, if necessary c) Clean the pipeline and filter d) Enlarge the pipe diameter and/or shorten the pipes e) Replace the coolant and raise the fluid temperature f) Replace the pump
High noise level	a) Too low water temperature b) Pump is not set correctly c) Blockage of the pipe d) Deformation of the fan blades e) Loose screws f) Resonance of the pipelines	a) Increase the set temperature b) Regulate/adjust the adjustable screw of the pump c) Check the line, valves & filters d) Replace the fan e) Retighten the screws f) Locate and fasten the resonance point
Cooling compressor does not work	a) Incorrectly set water temperature b) Control fuse is blown c) Damage to the AC protector d) Damage to the transformer	a) Readjust the water temperature b) Replace the fuse c) Replace the AC protector d) Replace the transformer
Poor cooling effect	a) Too high ambient temperature b) Blockage of the filter c) Fluid level too low d) Insufficient flow e) Leakage of refrigerant	a) Vent and cool b) Clean the filter and the fan c) Refill water d) Check with respect to pipe blockages and clean the filter, if necessary e) Refill refrigerant (contact the manufacturer)
Alarm in case of a too low high-temperature water	a) Ambient temperature is too low b) Water supply error	a) Remind the customer there is a risk of condensation in case of high ambient temperature and high level humidity b) Contact the manufacturer for maintenance

7. Transport requirement

- ♦ When carrying the chiller, do not bump or tilt the chiller to avoid collision.
- ♦ Do not transport the chiller with your hands but with proper tools (forklift or crown block).
- ♦ Do not move or transport the chiller with coolant. Please dismantle the power line and drain the coolant before moving the chiller.
- ♦ When moving the chiller by forklift, make sure the chiller is in balance and keep a distance of no greater than 200mm from the ground. (See Fig. 10)
- ♦ Castors must be removed or avoided when moving the chiller by forklift.
- ♦ When moving the chiller by crown block (See Fig. 11):
 - a) Keep a safe distance from the crown block and rope of lifting device should be $\leq 45^\circ$.
 - b) The chiller is designed to have lifting device. Please use the supplied lifting device.

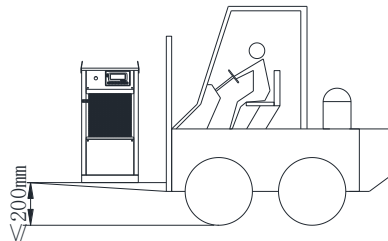


Fig.10



Fig. 11

8. Storage

Please take measures to protect condenser and other internal parts against dust and water. If the chiller is not to be used for a long time, please drain coolant inside the chiller, including water pump, filter and pipeline. Detailed steps are described as follows:

8.1 Steps to drain away coolant

- ♦ Start operation 5 minutes after disconnecting the power supply.
- ♦ Close ball valves on inlet/outlet to remove pipe fittings.

- ♦ Drain away water in the tank, pump, filter, resin tank, plate heat exchanger and pipeline.
- ♦ Blow away the residual coolant in the chiller from different ports until there is no water flowing out.
- ♦ Close ball valves on inlet/outlet and drain valve.

8.2 Storage

- ♦ The chiller should be kept away from dust.
- ♦ Wipe the surface of the chiller, blow the internal dust with air pump and wipe off greasy dirt.
- ♦ Protecting cover should be put on the chiller to prevent against dust and water.
- ♦ The chiller should be placed on a flat ground with good ventilation to prevent from exposing to rain and direct sunlight.
- ♦ Make sure the castors (if any) are fixed or locked to avoid damage due to sliding of castors.
- ♦ Ambient temp: 0-55 °C, level of humidity: ≤90%RH

9. Scrapping

The chiller should be disposed as industrial refuse when reaching its service life, please dispose the internal metal parts, plastic parts, electric parts, refrigerant in accordance with the region environmental requirement under the guidance of the professionals.

10. Others

10.1 Service support

- ♦ The chiller is guaranteed for 12 months from the ex-factory date (unless otherwise specifically agreed).
- ♦ Device damages caused by improper shipment, installation and force majeure are not under warranty.
- ♦ Beyond the scope of warranty, the manufacturer provides paid services.
- ♦ The manufacturer can provide accessories within 10 years.

10.2 Others

There is a spare fuse in the electrical cabinet for the control circuit (AC220V, AC24V). When the fuse is burned out, the chiller will stop. There is a need to check

electric wiring before replacing fuse.

Notes: If users change the fuse by themselves, the fuse model should be the same as the original one.

10.3 Special note

- ♦ In case of export, the exporter must confirm that the exported chillers are in compliance with the local laws in terms of the refrigerant use and the safety regulations. All consequences arising from failure to confirm the foregoing law requirements by the exporter shall not be held accountable for the manufacturer.
- ♦ If protection degree fails to meet customer's requirement, there is a need to take protective measures. The chiller can only be used when protection grade is achieved.
- ♦ For a product which cannot be used independently due to incomplete control system, the customer is required to provide necessary parts. Application is allowed only if the safety directives (i.e. CE) are fulfilled.

Business name of the manufacturer:

Sanhe Tongfei Refrigeration Co., Ltd.

Full address of the manufacturer:

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