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# Operation Manual

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## Before use

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Dear User:

Thanks for your trust.

This operating manual is designed to familiarize you with the operation of our units and their possible applications, please read the operating manual carefully prior your use. And handle the device with care during transportation, unpack, testing, operation, maintains, storage, and scrape.

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## Warning

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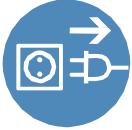


### Warning !

Danger of electric shock.

Have all service and repair work carried out by authorized specialists only.

Switch off the unit and pull the plug before carrying out any service or repair work.



### Warning !

Do not operate the device in explosive atmospheres, with hazardous substances.



### Warning!

Unit parts may develop high surface temperatures. A hot surface means it has a temperature of 60 ° C / 140 ° F or more.

Let the device cool down to an uncritical safe temperature. Use safety gloves.



### Requirements for the operating personnel

The operator is responsible for the qualifications of the person operating the unit, To ensure that the person who operate the unit is trained in the relevant work application by a trained person.

The operative must receive regular training about the dangers involved with their work and about action to prevent such dangers.

Ensure that everybody involved with the operation, maintenance and installation have read and understood the safety information and the operating manual. The unit may only be configured, installed, maintained and repaired by trained personnel.

If hazardous substances or substances which may become hazardous are used, the unit may only be used by a person who is completely familiar with these substances and the unit. This person must be able to assess the possible dangers in full.



The device can only run without any malfunction or damage.

As the operator of the device, any malfunction or damage found, please: Switch off the device.

Pull the plug of the device.

Contact us for trouble shooting or repairing.

Note:

Place the unit on an even, stable, clean, nonslip, dry and fireproof surface.

The bath may be filled with flammable materials. Fire hazard!

Recommended fluids only, chemical dangers may occur, depending on the bath medium.

Prevent water getting into hot bath oils.

The safety temperature limit must always be set to at least 25C lower than the flash point of the fluid used.

Check the filling level of the bath fluid at regular intervals. The pump and heater must always be completely covered with bath fluid.

Risk of burning caused by vapor or hot water at the outlet of the cooling coil.

The formation of explosive mixtures is possible if the ventilation is inadequate.

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## Unpack and check

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Unpack the device and check the device and accessories carefully.

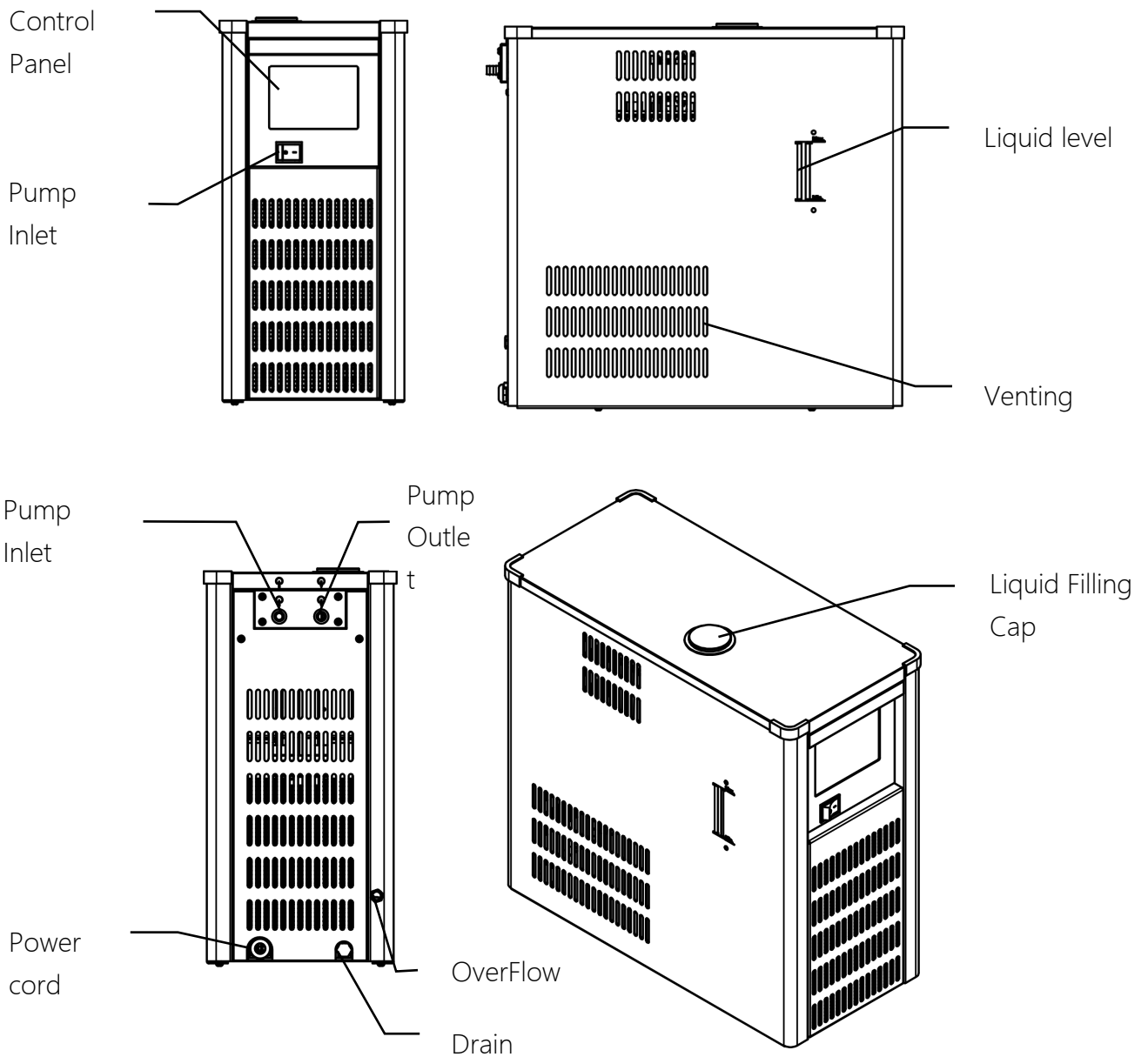
Please **FILL** the warranty card if you found any damage of the device and accessories, notify the distributor and inform us immediately.

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## Setting up

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### Functional Module



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## Setting up

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Place the unit on an even, stable, clean, nonslip, dry and fireproof surface.

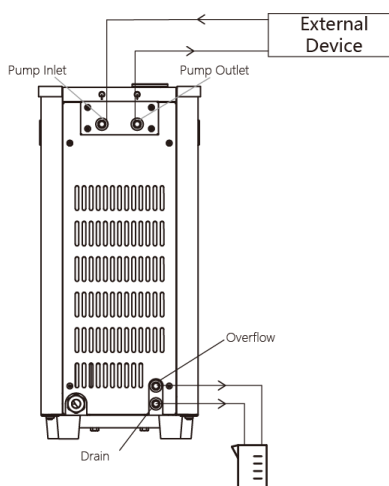
Keep at least 10 cm of open space on the front and rear side.

Do not set up the device close to heat sources and do not expose to sun light.

Ensure the pump plug is security fixed without any external circulation.

## Filling and draining

Connect the inlet and outlet to the external reactor (if needed).



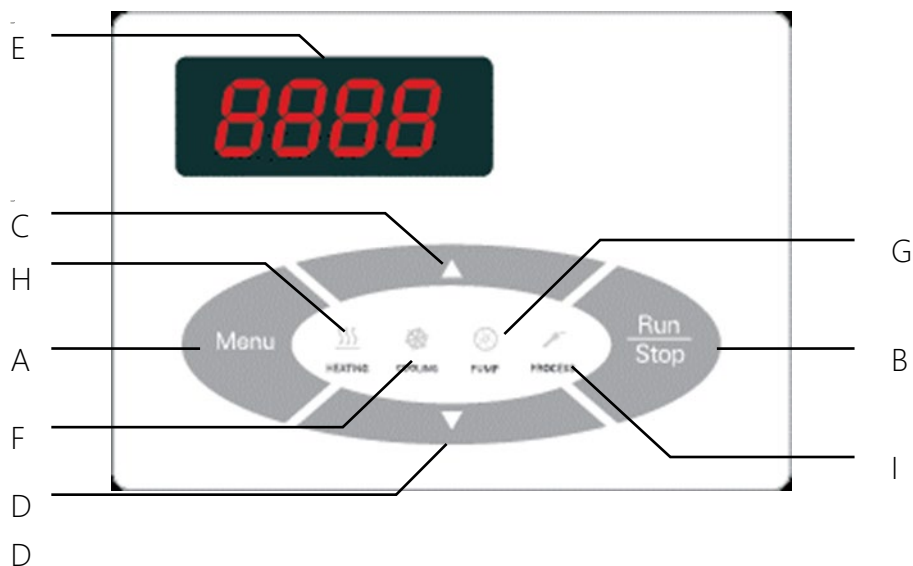
Attention: Ensure the drain valve is fully closed before Filling.  
Remove the bath cover before Filling.  
Monitor the liquid level during Filling.



Attention: Do not empty the bath while it is still hot, there is a risk of burning! Only drain with a suitable draining hose and container.

## Operation

Control panel:



Item	Button/Indicator	Function
A	Menu/Pump button	press for 1 seconds, to turn on/off the circulation pump. press for 5 seconds, to entry setting mode (Menu).
B	Run / Stop button	press for start/stop circulation and temperature control.
C	Temperature setting (up)	press for <b>turn</b> up the setting temperature.
D	Temperature setting (down)	press for <b>turn</b> down the setting temperature.
E	LED display	Display for the temperature and pump speed. Indicator
F	Cooling indicator	on when compressor activation
G	Pump indicator	Indicator on when pump activation
H	Heater indicator	Indicator on when heater on.
I	External temperature sensor indicator	Indicator on when external temperature sensor plug in.

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Menu :

Press button (A) for 5 seconds to enter the setting mode.

To set the maximum temperature limitation (High Temperature — Hi T):



Press button (B), to jump to the next setting item.

Press button (A), to exit the setting mode, and display the working temperature.

Press button (C) or (D) to enter the max. temperature setting interface.



Press button (C) or button (D) to adjust the max. temperature limitation.

Press button (B) to save the setting and exit.

Press button (A), to exit the setting mode, and display the operation temperature,

To set the lowest temperature limitation (Low Temperature — LO T) :



Press button (B), to jump to the next setting item.

Press button (A), to exit the setting mode, and display the working temperature.

Press button (C) or (D) to enter the lowest temperature setting interface.



Press button (C) or button (D) to adjust the lowest temperature limitation.

Press button (B) to save the setting and exit.

Press button (A), to exit the setting mode, and display the operation temperature,

Beeper (Beep) :



Press button (B), to jump to the next setting item.

Press button (A), to exit the setting mode, and display the operation temperature,

Press button (C) or button (D) to enter the beeper setting interface.



Press button (C) or button (D) to turn on/off the beeper.

0: Beeper off            1: Beeper on

Press button (B) to save the setting and exit.

Press button (A), to exit the setting mode, and display the operation temperature,



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Working mode (Mode):



- Press button (B), to jump to the next setting item.
- Press button (A), to exit the setting mode, and display the operation temperature,
- Press button (C) or (D) to enter the working mode setting interface.



- Press button (C) or button (D) to adjust the working mode setting. Press button (B) to save the setting and exit.
- Press button (A), to exit the setting mode, and display the operation temperature.

Note:

Mode 1: After power failure, no automatic restart of functions.

Mode 2: After power failure automatic restart of functions, depending on previous settings.

Mode 3: After power failure automatic restart of functions, depending on previous settings. Set values (set in A1 or B) cannot be changed.

Over temperature protection (Over temperature — O T):



- Press button (B), to jump to the next setting item.
- Press button (A), to exit the setting mode, and display the operation temperature,
- Press button (C) or (D) to enter the over temperature protection setting interface.



- Press button (C) or button (D) to adjust the over temperature protection temperature value.  
For example, to set the over temperature protection temperature value at 110.0 °C, then the device will cut off the heating circuit if the fluid temperature is higher than the setting value 110.0 °C.
- Press button (B) to save the setting and exit.

Note: The over temperature protection will be changed to HIT+10.0°C after the maximum temperature (HIT) modification

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Temperature calibration Reset (Calibration --- rCAL) :



- Press button (B), to jump to the next setting item.
- Press button (A), to exit the setting mode, and display the operation temperature.
- Press button (C) or (D) to enter the temperature calibration mode setting interface.



0: reset      1: 1-points cal.      2: 2-points cal.      3: 3-points cal.

- When the setting value is “0” , press button (B) to reset the previous calibration data.

Temperature calibration point 1:

- The interface for viewing the value before correction:



- Press button (B), to jump to the next CLP2 item.
- Press button (A), to exit the setting mode, and display the operation temperature.
- Press button (C) or (D) to enter the interface for viewing the value.



- Press button (B), to jump to the temperature calibration point 1 deviation value interface .
- Press button (A), to exit the setting mode, and display the operation temperature.

- Deviation value interface:



- Press button (B), to jump to the next CLP2 item.
- Press button (A), to exit the setting mode, and display the operation temperature.
- Press button (C) or (D) to enter the temperature calibration point 1 deviation value input interface.



- Press button (B), save the deviation value and jump to the next CLP2 item.
- Press button (A), to exit the setting mode, and display the operation temperature.

The device can be calibrated a total of 3 points.

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Examples:

The actual measurement data of the third-party sensor is 37.00°C, and the value before CLP1 correction is 37.05°C, then the COP1 deviation value should be entered -0.05 (deviation value=actual measurement data - pre-correction value), press button (B), to save the deviation value.

CLP1 Before correction , COP1 Deviation 

Note: Make sure the calibration value is stable and reliable, and then press the button (B) , to save the deviation value.

Show device serial number:

To show the 1st 4 Digi of the serial number(High Serial number—HiSn)



- Press button (B), enter the menu to show another 4 Digi of the serial number.
- Press button (A), to exit.
- Press button (C) or (D) to show the 1st 4 Digi of the serial number.

To show another 4 Digi of the serial number(Low Serial number—LoSn)



- Press button (B), enter the next menu.
- Press button (A), to exit.
- Press button (C) or (D) to show another 4 Digi of the serial number.

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## Error codes

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Any error happen, the device will stop circulation and heating, beeper on and show the error message on the display.

Proceed as followings in such cases:

- Turn off the device and pull the plug.
- Carry out corrective measures. restart
- the device.

Error code	Cause	Solution
Er00	Internal temp. sensor error	Restart the device.
Er01	External temp. sensor error	Check the connection of the sensor.
Er02	Cooling system over pressure	Switch off the device 1 hour for cooling down, clean the ventilation mesh.
Er03	Communication time out	Check the connection of the Data cable.
Er04	Low liquid	Check the liquid level of the bath vessel.
Er05	Over temperature	Check the over temperature setting value; Check the Temperature sensor and the heater.

Please contact us if the corrective action described fail.

## Maintains

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- Do not impact the device, especially the control panel.
- Please check the device before start up.
- Please check the control panel and warning labels every functional periodic (every half year).
- Operation (ambient) temperature range: Max. 32°C , Min. 5°C . Max humidity:50% (40°C)。
- Only operate the unit in rooms that are well-ventilated, dry and free of frost.
- Do not expose the device directly under sunlight.
- Ensure good PE connection of the device.
- Turn off the device before any cleaning / servicing / maintains. Drain
- the unit completely before transporting it.
- Do not start the unit if it is damaged or leaking.

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## Accessories:

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PVC tube (DN 8)	Temperature range:-20…60° C
PVC tube (DN 12)	Temperature range:-20…60° C
NBR tube (DN 8)	Temperature range:-30…80° C
NBR tube (DN 12)	Temperature range:-30…80° C
Silicone tube (DN 8)	Temperature range:-40…180°
C Silicone tube (DN 12)	Temperature range:-40…180°
C FKM tube (DN 8)	Temperature range:-20…180°
C	
FKM tube (DN 12)	Temperature range:-20…180° C
PTFE tube (DN 8)	Temperature range:-60…180° C
PTFE tube (DN 12)	Temperature range:-60…180° C
Thermal insulation sleeve (for DN8 tubes)	
Thermal insulation sleeve (for DN12 tubes)	
PT 100 external temperature sensor	

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## Warranty

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The warranty period of device is 12 months not include damage to the product resulting from accident, misuse, improper installation or operation, unauthorized or improper repair, replacement or alteration, failure to provide or use of improper maintenance, unreasonable use or abuse of the product, or failure to follow written installation or operating instructions.

In the warranty period, we will provide free repairing, component or new device exchange if necessary. We reserves the right of the warranty interpretation.

Declare of any related damages, are not included in this guarantee.