



Laboratory Equipment Manufacturer

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Integrated Thermostatic Magnetic Blenders

Operation Manual

OBHR-1/3/5



PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

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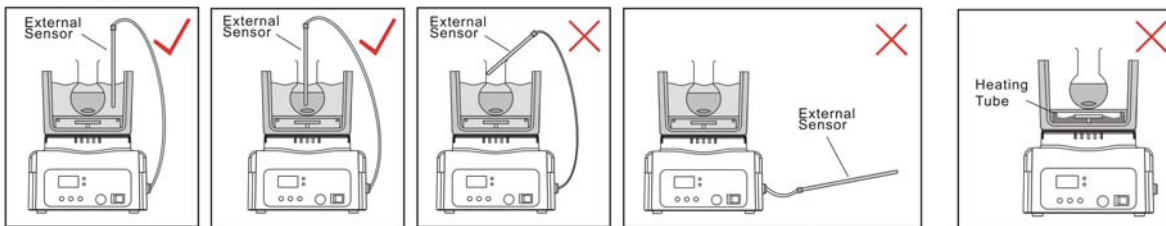
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NOTE:

- This product can not be used in inflammable and explosive locations. Prohibit dry burning.
- The temperature of bath is very high, please watch out for scald when it is used.
- Cut off power when not doing experiments.
- Prohibit unattended work to avoid accidents.
- Put the container on the center of the bath.
- Please check the fuse if the indicator light doesn't work after energized or temperature display is not showed after switching on.
- When not using an external sensor, disconnect it.
- When the external sensor connection, you must ensure that the sensor probe immersed in the liquid inside, so has been heated, dangerous. Specific methods as shown below:

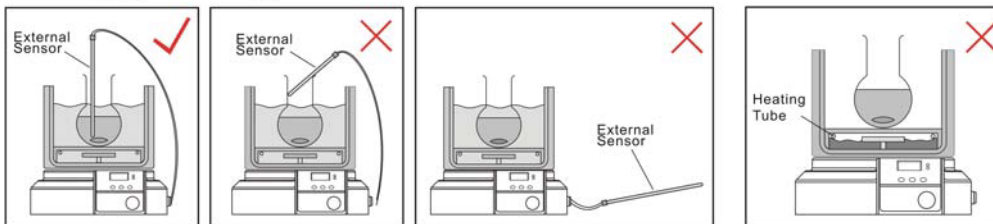
OBHR-1



The use of external sensors

Prohibit dry burning

OBHR-3 / OBHR-5



The use of external sensors

Prohibit dry burning

- ✓ Correct Operation
- ✗ Faulty Operation

I. Features

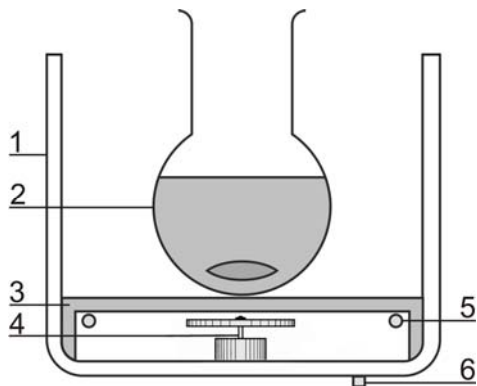
1. Adopt the heater which can be used for water and oil, not only applicable for synthetic reaction of water bath, but also for high temperature synthetic reaction of oil.
2. Strong magnetic stirrer is installed under the bath, and ensure the temperature of the bath liquid even through driving the stirrer inside of the bath to stir.
3. Strong magnetic stirrer under the bath and stirrer inside the bath stir the materials at the same time, ensure the temperature of high viscosity materials even.
4. The performance of DC brushless motor is stable, can be used continuously.
5. High temperature proof magnet doesn't lose magnetism when it is used in 300°C continuously.
6. PID temperature control.
7. OBHR-1 has only external sensors, OBHR-3, OBHR-5 has a internal sensor and external sensor two functions.

II. Product specifications and performance indicator

Model	OBHR-1	OBHR-3	OBHR-5
Temperature range (°C)	Water: room temp+5~80 oil: room temp+5~200		
Speed (rpm)	0~2000		
Temperature stability (°C)	±1		
Bath size (mm)	Φ140×90	Φ220×110	Φ250×140
Max. flask capacity (mL)	500	3000	5000
Overall dimensions (mm)	190×190×230	280×260×230	280×260×260
Weight (kg)	4	5	6

III. Use Method

1. Pictures instructions:



- | | |
|-----------------|--------------------|
| 1. Bath | 2. Reaction vessel |
| 3. Tray | 4. Two stirring |
| 5. Heating Tube | 6. Internal sensor |

- Please confirm the location of the two stages stirrers is correct before using (OBHR-3、OBHR-5) , ensure the machine work normally.

2. Use Method:

- ① Fix the reaction container, and add the materials into the bath according to your needed temperature.
- ② If the water bath or oil bath is used to stir, please add suitable volume water or oil according to the container's capacity (**Note:** water or oil can't be overfilled in case of damaging the machine and in danger); the liquid level should be 2/3 of the bath.
- ③ Power on and switch on the heating switch, the display show "Input type PT" for 4S, the machine enters the running state and shows the measurement temperature. After the temperature is set, the machine is in normal working condition.
- ④ Turn the potentiometer switch to open stirring function and adjust the rotary speed slowly according to your needs.
- ⑤ Temperature setting: press SET setting button, display SP and set value periodically, change the set value by increasing "▲" and reducing "▼". Press SET button to confirm and exit the setting state.

- ⑥ Press the reducing button for 8S time, the decimal point of the LED display begin to twinkle. And the meter enters automatic self-adjustment state. After automatic self-adjustment, a set of PID parameters are obtained which make the effects of temperature control are the best. Hereafter, the meter will control the temperature according to new PID parameters. (The first use or after replace medium, please self-tuning, make more accurate temperature control.)
- ⑦ The sensor of OBHR-3 and OBHR-5 is internal. If you need to test the temperature of reaction container, just insert the external sensor into the sensor connector; If not measuring temperature reaction container, please pull out external sensors or placed in a liquid tank, and must make the sensor immersed in the medium. The sensor of OBHR-1 is external and just put it into the sensor probe immersed in the bath tank or the reaction mass.

IV. Circuit board function parameters

Press set button for 4S time, input password LC=3, enter into the internal parameters. And quit after pressing set button for 4S again.

Parameters indicator	Parameters name	Parameters function instruction	(Range) Factory value
Lc-	Password	“Lc=3” to view and modify the parameter values	0
P-	Proportional band	Time proportion adjustment. By reducing P, speed up heating output; by increasing P, decrease overshoot.	(1.0~Range values) 35
I-	Integral time	Integral time constant. The smaller of I value, the stronger of integral action. And can adjust control error.	(1~1000s) 200
d-	Derivative time	Derivative time constant. The bigger of D value, the strong of derivative action. And can overcome overshoot.	(0~1000s) 200

Circuit board function parameters

T-	Control period	Heating temperature control cycle.	(1~60s) 5
AL-	Over temperature deviation alarm	When the temperature measured values > temperature value + AL ", warning lights, Buzzer chirping, disconnect the heating output.	(0~100℃) 5
Pb-	Zero adjustment	Correction (low temperature) generated when the measuring error of the sensor. Pb = actual temperature - Instrument measurements	(-50~50℃) 0
Pk-	Full adjustment	Pk = 1000 * (the actual temperature value - instrument measurements)/instrument measurements	(-999~999) 0
Et-	Timing function	Et = 0, no time function; Et = 1, the electric start timing; Et = 2, to the set point start timing.	(0~2) 0

V. Guarantee and Service

Our company will provide maintain service free in one year after selling, if customer use it correctly. Our company will provide maintain service when the warranty period is over but charge component cost and maintenance fees.

Machine Depot ago:

- (1) Please use the unit to clean the machine, in order to avoid contamination during transportation.
- (2) Please attach documentation on the machine, the fault description.
- (3) Please machine with appropriate packaging to avoid shipping damage.

Please read the instruction carefully before using this product, follow the operation procedure strictly.

Please contact us if any quality issues occur.

Technology Consulting Tel: 972-3-5595252

VI . Analysis and troubleshooting of common failures

1.	The whole machine is out of charge;	The power supply has no power;	Check the power supply;
		The protective is fusing;	Replace the protective tube;
2.	Do not display temperature;	The power supply is not opened;	Open the power supply switch;
		The display panel line falls off;	Plug the connection line well;
		Splash water or oil on the PCB;	Blow dry it and start the machine;
3.	Display SEr	The external sensor fall	Check the external sensor, and restart the power
		No thermal bath of liquid inside (dry)	Adding an appropriate amount of liquid, and restart the power
4.	Display ---	Sensor open or short	Replace the sensor;
5.	The temperature control is abnormal;	The temperature control circuit is bad;	Replace the temperature control circuit;
6.	Stir control disorders	Potentiometer is bad;	Replace the potentiometer;
		Switching power supply no output DC24V;	Replace the switching power supply;
		The rotation controller is bad;	Replace the controller;
		Electric power lines fall;	Plug the connection line well;