Dynalab Corp
Supplying Science and Education

Hot Plates, Stirrers, and Stirrer Hot Plates (SC, SHC, HA & HC series)

OPERATING MANUAL

VERSION 1.0

Afon™

Dynalab Corp.
November 2017

This manual is suitable for the use of the series products of Hot plates and Stirrers described in the following table:

Model	Body Material	Function	Plate Dimension (mm)	Plate Material	Wattage (W)	Control Mode
HC-01-01	Metal	Heat Only	160 x160	Ceramic	550	Digital
HC-02-01	Metal	Heat Only	300 x300	Ceramic	1800	Digital
SC-01-01	Metal	Stir Only		Ceramic	50	Analog
SC-02-01	Metal	Stir Only		Ceramic	50	Analog
SHC-01-01	Metal	Heat & Stir		Ceramic		Digital
SHC-01-1D	Metal	Heat & Stir		Ceramic		Digital
SHC-02-01	Metal	Heat & Stir		Ceramic		Digital
SHC-02-1D	Metal	Heat & Stir		Ceramic		Digital

BEFORE USE:

Please read the following instructions:

Read the Manual first before operating the instrument

For indoor use only

Check the integrity of the unit before you plug into the power outlet!

Use in a well-ventilated area and away from any flammable objects

Do not turn on the unit without any containers or the container without any liquids on the top of the plate

Do not use bottle other than beakers for heating

Do not remove any objects when the unit in use

Warning

ALL UNITS MUST BE GROUNDED

Check the line supply is sufficient to meet the power requirement of the unit!

Warranty

Dynalab Corp. provides a 90 day warranty for the units in this series.

This warranty does NOT apply if damage is caused by fire, accident, misuse, neglect, incorrect adjustment or repair, damage caused by incorrect installation, adaptation, modification, fitting of non-approved parts or repair by unauthorized personnel. When returned the defective products, customers should be responsible for the shipping and insurance costs

LIMITATION OF LIABILITY

NOTWITHSTANDING ANY OTHER PROVISIONS HEREIN, UNDER NO CIRCUMSTANCES IS EITHER PARTY LIABLE FOR ANYCONSEQUENTIAL, SPECIAL, INCIDENTAL, INDIRECT, MULTIPLE, ADMINISTRATIVE, OR PUNITIVE DAMAGES, OR ANY DAMAGE OF AN INDIRECT OR CONSEQUENTIAL NATURE ARISING OUT OF OR RELATED TO ITS PERFORMANCE, WHETNER BASED UPON BREACH OF AGREEMENT, WARRANTY, OR NEGLIGENCE AND WHETHER GROUNDED IN TORT, CONTRACT, CIVIL LAW, OR OTHER THEORIES OF LIABILITY, INCLUDING STRICT LIABILITY, EVEN IF ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH DAMAGES. THE COMPANY'S TOTAL LIABILITY INCLUDING, BUT NOT LIMITED TO, LIABILITY FOR INDEMNITY, DEFENSE, AND HOLD HARMLESS OBLIGATIONS IS LIMITED TO NO MORE THAN THE AMOUNT PAID TO THE COMPANY UNDER THE CUSTOMER'S ORDER AND THE CUSTOMER AGREES TO INDEMNIFY THE COMPANY FOR ANY EXCESS AMOUNTS. TO THE EXTENT THAT THIS LIMITATION OF LIABILITY CONFLICTS WITH ANY OTHER PROVISION(S) OF THIS AGREEMENT, SUCH PROVISION(S) WILL BE REGARDED AS AMENDED TO WHATEVER EXTENT REQUIRED TO MAKE SUCH PROVISION(S) CONSISTENT WITH THIS PROVISION

Overview

Hot plates and stirrer are commonly used in the lab for heating and mixing solution. For safety reasons, our products are equipped with overheated hardware and hot warning via indicator and appropriate labels.

Figure 1 – 4 show the front panel and rear power socket diagrams of the hot plates, stirrer and stirrer hot plates. There are four LED indicators in the stirrer hot plates, two in the stirrers and three in hot plates. The indicators are important for users to know the operation status to safely and appropriately use the units:

Power LED: when the Power LED on, it indicates the unit connecting to power line and starting the heat and/or stir process.

HEAT LED: When turning the heat knob, the Heat LED will be on, indicating the heat process begins.

HOT LED: The LED is used to indicate the HOT status of the hot plates. When the temperature is above 50 ˚C, the HOT LED is always on even the unit has been turned off.

STIR LED: When turning the stir knob, the LED is on, indicating the stir process begins.

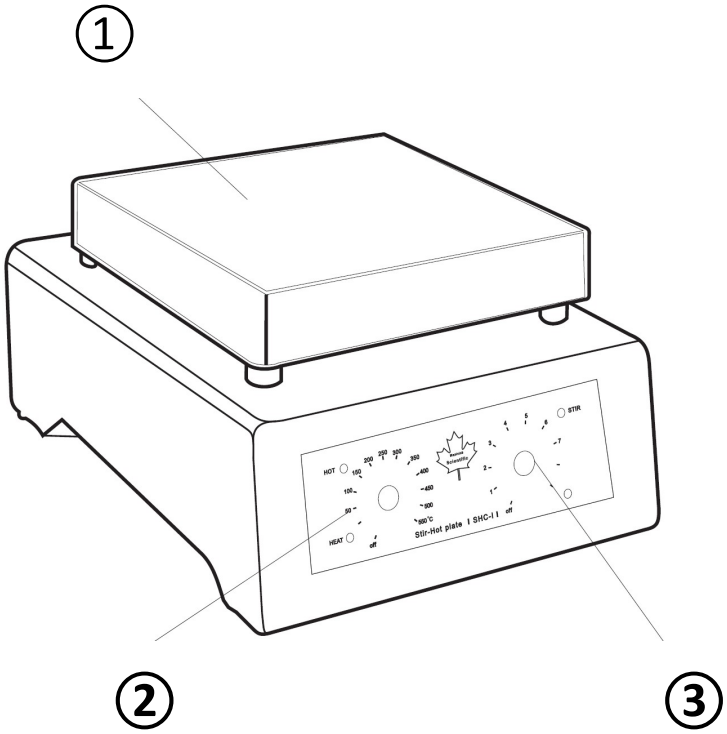


Figure 1: The front view of SHC-01-1D (Stirrer Hotplate). ① Micro crystal plate ② Temperature control ③ Stirrer control

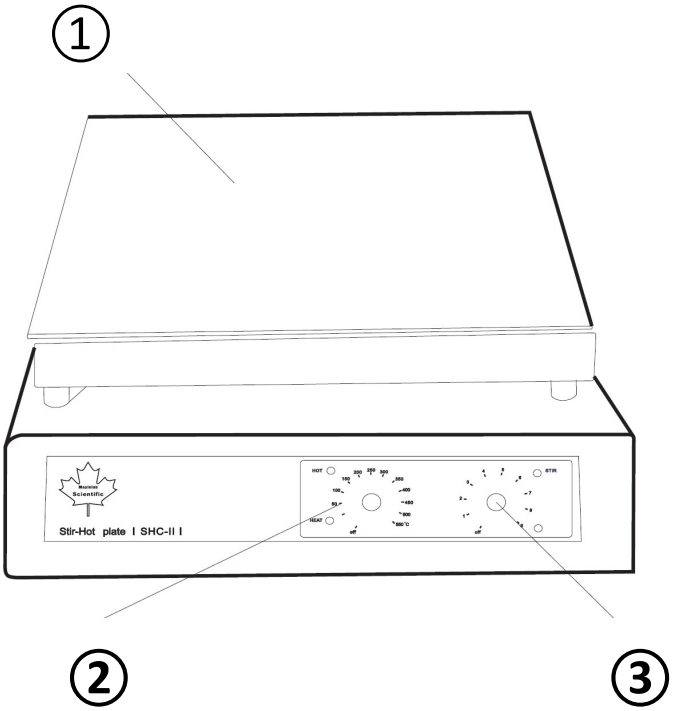


Figure 2: The front view of SHC-01-1D (Stirrer Hotplate). ① Micro crystal plate ② Temperature control ③ Stirrer control

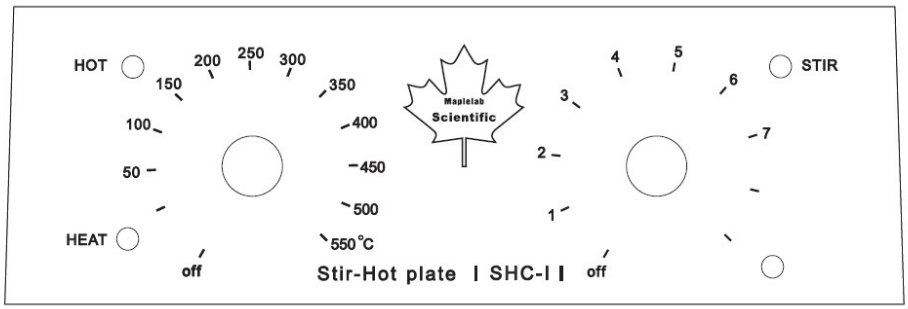


Figure 3: The Fascia of the SHC-01-01

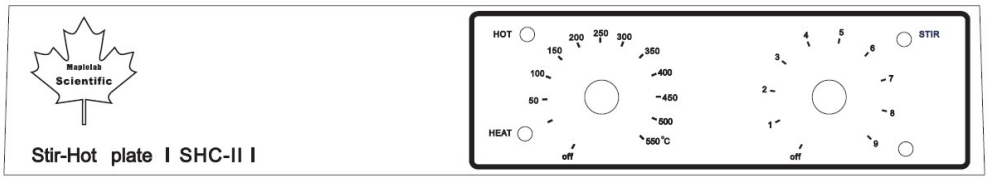


Figure 4: The fascia of the SHC-01-01

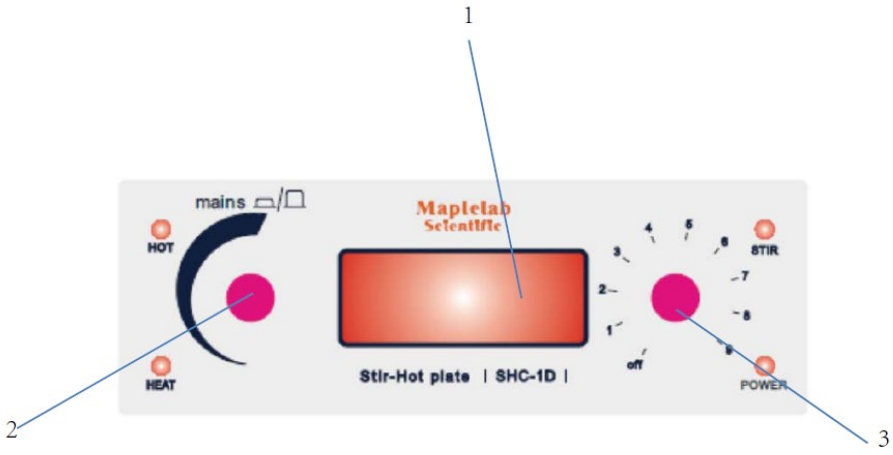


Figure 5: The fascia of the SHC-01-1D: ① Stirrer knob; ② Main Knob with push function; ③ LED Display

Operation

WARING: DO NOT PLACE THE MACHINE IN A DRAFTY AREA TO AVOID THE EFFECT OF THE ENVIRONMENTAL TEMPERATURE ON THE TEMPERATURE CONTROL OF PLATE AND/OR SOLUTIONS!

For heating

1. Place the beakers or other containers **(DO NOT USE BOTTLES OR OTHER GLASSWARES EXCEPT BEAKER AND GLASSWARES KNOWN AS SAFE IN THE HEATING PROCESS!)** with liquids **(DO NOT PUT EMPTY CONTAINERS ON THE TOP PLATE OF THE HOTPLATES!)** first. Try to avoid placing cold liquids directly to the hot plates when the top of the hot plate is HOT.

2. Turning the heat knob to the desired temperature. And the Power, HEAT LED will be on, indicating the heating begins. When the temperature reaches 50˚C, the HOT LED starts to be ON. Do not try to touch the containers and the unit in this time.

3. Always use stirrer for the heating of viscous liquids. The viscous liquid can have the thermal insulated effects, causing sudden burst of the liquid and even the breakage of the beakers. Make sure that the liquids are stirred in the correct way and monitor the process to avoid any accident.

4. When the heat process complete, turn off the unit and wait until the HOT LED comes off. Do not try to take the beakers immediately!

5. Unplug the power cord after use!

For stirring

1. Place the stirrer bar into the liquid – use the appropriate and normal cylinder shape stirrer bar to gain the maximum stirring effect.

2. Turning the stirring knob to gain the optimum stirring effect. In this time, the Stir LED will be on. With our special design, the stirring will occur at slightly delay time to minimize the disengaging movement of the stir bar. Try not to turn to maximum speed to avoid spilling of the solution due to the vigorous stirring. The standard length of the stir bar is 30 mm length. Try to use the standard bar first and changing to longer stir bar if needed. Try to adjust the speed with various stir bars to avoid the disengagement.

3. Monitoring the stirring effect when stirring, especially when the viscosity of the liquid changed during heating.

Special Instructions for the digital hotplates (SHC-01-1Dand SHC-02-1D)

The Digital models are designed to be used with or without external probe (PT 1000). With external probe attached, the machine controls the heating process according to the external probe, and the temperature display shows the actual solution temperature (detected by the external probe), not the plate temperature. The display resolution automatically switches to 0.1 ˚C and the accuracy of temperature control is ±0.5 ˚C.

With sophisticated PID control mechanism, the solution can be controlled accurately independent on volume changes and the effects from environment.

The machines come with many safety features, such as internal check on the internal and external probes function to prevent over-heat the samples and other safety problems. The machine will beep, display error message and cut off the heating process when external probe attached. It prevents the severe outcomes due to negligent of the use, malfunction of probes and/or solution drying.

1. Always put the machine in the steady and flat table! To use with external probe, assemble the rod and place the probe correctly. The probe must be placed into the solution before plug into power outlet.

2. When plug the power cord into the outlet, all the LED indictors will be on and the machine automatically does the self-test, and then the LED display will show “888.8”, the version of software, such as “2.X”, and all indicators will be off. The Display shows “ ----“ and then the actual plate temperature. If the plate temperature is over 50 ˚C, then the HOT LED remains on.

3. Push the main knob once, the display shows the preset temperature, and turns the knob to the desired temperature (turn left to reduce the temperature and turn right to increase the temperature). With external probe attached, the setting point can only be set to maximum 200 ˚C. Without external probe attached, the setting temperature can be set to 550 ˚C.

4. Push the main knob once, the machine starts the heating process, and the heat LED should be flashing to indicate the heat process on going. When reaching the set temperature at equilibrium stage, the heat LED will be steady on.

5. To change the set temperature during process, press the main knob once to stop the process first, then press main knob again to enter the setting mode, turn the knob to the desired value, and push the main knob again to start the heating under the new setting temperature.

6. To stop the heating process, push the main knob once, then the heat LED indictor will be off, and the Display will show the actual plate temperature. If the plate temperature is higher than 50 ˚C, the HOT LED indicator remains on until the plate reaching below 50 ˚C, and finally the display shows “OFF” and automatically shut off the machines. But the POWER indicator remains illuminated, indicating the power cord connected to electrical outlet.

7. The machines can be used as the stirrer or hotplate alone. The stirring knob has its-own on/off switch. To turn on the stirring, turn to right and you will hear a click, and turn to desired set point to setting speed and stirring process start immediately and the “stir” LED indicator will be on. Without start the heating, the machines act as stirrer alone and by the switching off the stirrer, the machines act as hotplate only.

8. The machines can be easily calibrated with aid of the standard temperature measuring device. Dip the standard probe of temperature measurement device into the solution, wait until reaching the steady stage, i.e. the head LED illuminated on (not flashing). In the rear panel of the machines, there is a small adjusting knob. Use small screw driver to adjust the value in the display to matching the value of the reading in the temperature measurement device.

9. When the machines detect the malfunction of the internal probe, then the machines will beep and the display shows “Err1”. The heating function won’t be work again. In this case, the machines must be returned to the manufacturer for repair or replacement.

10. With the external probe attached, the machines will also check the connectivity of both the external and internal probes. When detected the problem of the external probe, the display will show “Err2”. In this case, just call your distributors to replace the external probe.

11. With the external probe attached, if the machine detects the temperature of the external probe unchanged due to the negligent not to putting the probe into the solution, and /or the malfunction of the probe, and/or the sample solution drying, the machine will beep and stop heating, and the display will show the plate temperature. Put the external probe into the solution again, and the beep will go off, Display showing the external temperature and the heating process resumes.

Maintenance and Service

After use, wait until the unit cool, use a wet cloth to clean the top of the hot plates. Promptly cleaning is recommended to prolong the life time of the unit. We do not offer any replaceable parts for the service. If the units do not work without any misuse, just simply return to us for repair.

Declaration of Conformity

These products listed in this manual comply with EN 61326-1: 2006 and fulfill EMC testing requirement of Medical Device Directive (2004/108/EC) listed in the report number CE2012-OTE8003E; and EN 61010-1 plus EN 61010-2-010: 2003 of the LVD directive2006/95/EC in the listed report numberCE2012-AVE8006S.

CE mark affixed'2012

Signed:

Date:

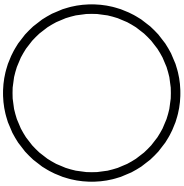
Inspection Report

Model _____

Serial Number _____

Safety		
	1. Integrity	√
	2. Packing status	√
	3. Correct warning label	√
	4. Electrical earth continuity	√
	5. Electrical Insulation	√
	6. Electrical Flash Test	√
Functional	**1. Visual acceptance**	√
	2. Appropriate control function	√
	3. Indicators	√

Quality Control Inspector



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