



Instruction Manual

Hotplate, Mini, HSMNHP4CAL

Stirrer, Mini, HSMNST4CAL

Hotplate-Stirrer, Mini, HSMNHS4CAL

Hotplate, Mini, Fixed, HSMNHP4CFT

Stirrer, Mini, Auto Stir, HSMNAS4CAL



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**PACKAGE CONTENTS**

- Mini Hotplate, Stirrer or Hotplate-Stirrer
- Power Cord
- Spin bar (stirring models only)
- Instruction manual

**SERVICE INFORMATION**

If the troubleshooting section does not resolve or describe your problem, contact your authorized OHAUS service agent. For service assistance or technical support in the United States call toll-free 1-800-672-7722 ext. 7852 between 8:00 AM and 5:00 PM EST. An OHAUS product service specialist will be available to provide assistance. Outside the USA, please visit our web site, [www.ohaus.com](http://www.ohaus.com) to locate the Ohaus office nearest you.

Serial Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Supplier: \_\_\_\_\_

## INSTALLATION

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Upon receiving the Ohaus Mini Hotplate/Stirrer/Hotplate-Stirrer check to ensure that no damage has occurred in shipment. It is important that any damage that occurred in transport is detected at the time of unpacking. If you do find such damage the carrier must be notified immediately.

After unpacking, place the Mini Hotplate/Stirrer/Hotplate-Stirrer on a level bench or table, away from explosive vapors. Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit and place the unit a minimum of six (6) inches from vertical surfaces. Always place the unit on a sturdy work surface.

The Mini Hotplate/Stirrer/Hotplate-Stirrer is supplied with a 3-prong power cord that should be plugged into a standard 3-prong grounded outlet. If the cord supplied does not meet your needs, please use an approved power cord that suits local codes and electric supply. Replacement of the plug must be made by a qualified electrician.

## MAINTENANCE

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The Mini Hotplate/Stirrer/Hotplate-Stirrer is built for long, trouble-free, dependable service. No lubrication or other technical user maintenance is required. It needs no user maintenance beyond keeping the surfaces clean. The unit should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. Spills should be removed promptly after the unit has cooled down. Do not use a cleaning agent or solvent on the front panel which is abrasive or harmful to plastics, nor one which is flammable. Always ensure the power is disconnected from the unit prior to any cleaning. If the unit ever requires service, contact your Ohaus representative.

## INTENDED USE

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The Ohaus Mini Hotplate Stirrers are intended for general laboratory use. Safety can not be guaranteed if used outside of the intended use.

## ENVIRONMENTAL CONDITIONS

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**Operating Conditions:** Indoor use only.

Temperature: 5 to 40°C (41 to 104°F)

Humidity: 20% to 85% relative humidity, non-condensing

Altitude: 0 to 6,562 ft (2000 M) above sea level

**Non-Operating Storage:**

Temperature: -20 to 65°C (-4 to 149°F)

Humidity: 20% to 85% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

## EQUIPMENT DISPOSAL

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This equipment must not be disposed of with unsorted waste. It is your responsibility to correctly dispose of the equipment at life-cycle-end by handing it over to an authorized facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect the persons involved in the disposal and recycling of the equipment from health hazards.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment. By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

## SAFETY INSTRUCTIONS

Please read the entire instruction manual before operating the Mini Hotplate, Stirrer, Hotplate-Stirrer.



**WARNING! DO NOT** use the Mini Hotplate/Stirrer/Hotplate-Stirrer in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment may be impaired if used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

Always operate unit on a level surface for best performance and maximum safety.

**DO NOT** lift unit by the top plate.



**CAUTION!** To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the wall outlet. Disconnect unit from the power supply prior to maintenance and servicing.

Spills should be removed promptly after the unit has cooled down. **DO NOT** immerse the unit for cleaning. Alkalis spills, hydrofluoric acid or phosphoric acid spills may damage the unit and lead to thermal failure.



**CAUTION!** The top plate can reach 500°C, **DO NOT** touch the heated surface. Use caution at all times. Keep the unit away from explosive vapors and clear of papers, drapery and other flammable materials. Keep the power cord away from the heater plate.

**DO NOT** operate the unit at high temperatures without a vessel/sample on the top plate.

**DO NOT** operate the unit if it shows signs of electrical or mechanical damage.

**WARNING!** Units are **NOT** explosion proof. Use caution when heating volatile materials.







Earth Ground - Protective Conductor Terminal



Alternating Current

## STANDARDS & REGULATIONS

Compliance to the following standards and regulations is indicated by the corresponding mark on the product.

Mark	Standards and Regulations
	OHAUS Corporation declares that the HSMN series hotplates, stirrers and hotplate-stirrers comply with directives 2011/63/EU, 2014/30/EU, 2014/35/EU and standards EN 50581, EN 61010-1, EN 61010-2-010, EN 61010-2-051, EN 61326-1. The full text of the EU declaration of conformity is available at the following internet address: <a href="http://www.ohaus.com/ce">www.ohaus.com/ce</a> .
	This product complies with directive 2012/19/EU. Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. For disposal instructions in Europe, refer to <a href="http://www.ohaus.com/weee">www.ohaus.com/weee</a> .
	EN 61326-1
	CAN/CSA C22.2 61010-1, CAN/CSA C22.2 61010-2-010, CAN/CSA C22.2 61010-2-051 UL 61010-1, UL 61010-2-010, UL 61010-2-051

### Global Notice

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### Canada Notice

This Class A digital apparatus complies with Canadian ICES-003.

### FCC Notice

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by Ohaus Corporation could void the user's authority to operate the equipment.

## SPECIFICATIONS

<b>Overall dimensions (L x W x H):</b>	7.9 x 6 x 5" (20.1 x 15.2 x 12.7cm)
<b>Top plate dimensions:</b>	4 x 4" (10.2 x 10.2cm)
<b>Top plate material:</b>	ceramic
<b>Electrical (50/60 Hz)</b>	
Hotplate/Fixed Temp Hotplate: 120 volts:	1.8 amps, 200 watts
230 volts:	0.9 amps, 200 watts
Hotplate-Stirrer: 120 volts:	2.5 amps, 200 watts
230 volts:	1.25 amps, 200 watts
Stirrer: 120 volts:	0.5 amps, 20 watts
230 volts:	0.25 amps, 20 watts
<b>Temperature range:</b> Hotplate/Hotplate-Stirrer:	to 500°C
Fixed Temp Hotplate:	500°C
<b>Speed Range:</b>	100 to 1200rpm
<b>Weight capacity:</b>	1000mL
<b>Controls:</b>	heat knob, 1 to 10 dial markings stir knob, 1 to 10 dial markings
<b>Ship weight:</b>	4lbs (1.8kg)



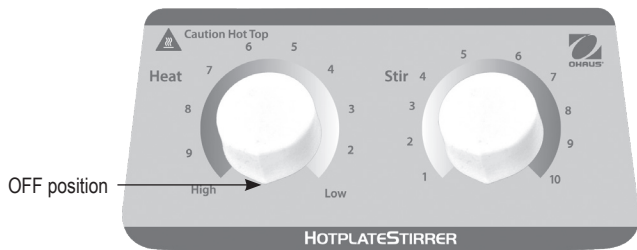
Heat knob runs from High to Low

Mini Hotplate-Stirrer with glassware

## MINI HOTPLATE/HOTPLATE-STIRRER HEATING OPERATING INSTRUCTIONS

### 1. Get ready:

Turn the heat knob to its off position. Plug the power cord into a properly grounded outlet. Place a vessel with solution and the appropriate accessories in the center of the top plate. This is important for heating because the vessel will be over the hottest part of the top plate.



### 2. Set temperature:

Turn the power on to the unit by pressing the toggle switch in the back of the unit to the 'on' position (Hotplate and Hotplate-Stirrer only). From the off position, turn the heat knob counter-clockwise until pointer reaches the selected heat setting (graduations on the panel surrounding the control knob are reference marks only and do not indicate specific temperatures). Rotating the heat control to its full on position will bring the hotplate surface to its maximum temperature of about 500°C. To prevent possible damage, however, this position should not be maintained indefinitely. Do not allow the unit to operate at maximum temperature without a beaker or flask (with fluid) on the top plate.

### 3. Adjust temperature:

Temperature adjustments can be made without interrupting heating by turning the indicator knob counter-clockwise to increase heat, or clockwise to decrease heat.

### 4. Turning unit off:

To stop heating, turn the heat knob to the off position. Your vessel can then be removed. The heat knob should be kept in the off position when not in use. Press the toggle switch to the 'off' position. To completely cut off power to the unit, unplug the power cord from the wall outlet.

## HEATING OPERATING TIPS

Best performance will be obtained if the unit is kept as clean as possible. Accumulated deposits on the top plate will retard the uniform distribution of heat. Materials, especially insoluble gums, resins, adhesives, etc., should be quickly removed from the top plate surface before they harden. Care should be taken as well, to prevent corrosive materials from entering the housing.

**CAUTION!** Hotplates/Hotplate-Stirrers are not explosion proof. Use caution when heating volatile materials.

In the event of a power outage or hazard that will interrupt unit operation, the unit will restart at set speed and/or temperature when a power outage or hazard is restored.

## MINI STIRRER/HOTPLATE-STIRRER STIRRING OPERATING INSTRUCTIONS

The Stirrer/Hotplate-Stirrer is designed to enable stirring at very slow speeds.

### 1. **Get ready:**

The stir knob has a built in on-off switch at its extreme counter-clockwise position. Turn the stir knob to the off position. Plug the power cord into a properly grounded outlet. Place a vessel with solution and the appropriate accessories in the center of the top plate. This is important for stirring because the spin bar will be well within the magnetic field.

### 2. **Turning unit on:**

Turn the power on to the unit by pressing the toggle switch in the back of the unit to the 'on' position (Hotplate-Stirrer only). From the off position, turn the stir knob clockwise until a click is heard, then continue turning until the desired speed is obtained. The stirrer may initially have to be set at a higher speed to overcome friction in the motor and the material being stirred. Once this is done, the stirrer will maintain the approximate speed set for as long as desired.

### 3. **Set speed:**

Speed adjustments can be made without interrupting stirring by turning the stir knob clockwise to increase speed or counter-clockwise to decrease speed.

### 4. **Turning unit off:**

To stop stirring, turn the stir knob to the extreme counter-clockwise position. The unit is now in the off position. Your vessel can then be removed. The stir knob should be kept in the off position when not in use. Press the toggle switch to the 'off' position. To completely cut off power to the unit, un-plug the power cord from the wall outlet.

**PLEASE NOTE:** When using stirrer and heater simultaneously, the stir setting will need to be increased to maintain the same speed as when the heater is off. This will not effect the operation of the unit.

## STIRRING OPERATING TIPS

The stirrer increases speed at a steady rate until the set-point is reached, if the spin bar is too large or the liquid is too viscous, the stirrer may not reach its set-point. The set-point speed needs to be reduced.

### **Stirring vessels in oil baths:**

When heating and stirring a reaction vessel within an oil bath or similar set-up, the stirring function will stir up to approximately one (1) inch from the top plate. The stirring speed will vary according to liquid viscosity, spin bar length and distance from the top plate. Adjust one or all of these to achieve the desired stirring speed.

**EXAMPLE:** The closer the reaction vessel is to the top plate the stronger the magnetic connection.

In the event of a power outage or hazard that will interrupt unit operation, the unit will restart at set speed and/or temperature when a power outage or hazard is restored.

## TECHNICAL SERVICE

For information or technical assistance contact your local Ohaus representative or visit [ohaus.com](http://ohaus.com).

## TROUBLESHOOTING

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Unit will not reach desired speed	Sample volume or viscosity	Reduce volume or viscosity. If problem persists, please contact your Ohaus representative for repair.
Unit will not reach desired temperature	Sample volume or viscosity	Reduce volume or viscosity. If problem persists, please contact your Ohaus representative for repair.
Spin bar decouples	Faulty spin bar	Replace spin bar or use alternate type.
Unit is excessively noisy	Motor	This error cannot be fixed by the end user. Please contact your Ohaus representative for repair.



