



Instruction Manual

Hotplates, Stirrers, Hotplate-Stirrers

600 Series Standard

700 Series Advanced



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PACKAGE CONTENTS

Hotplate, Stirrer or Hotplate-Stirrer
 92" (234cm) detachable power cord
 Spin bar (stirring models only)
 Instruction manual
 Warranty card

WARRANTY

Manufacturer warrants this product to be free from defects in material and workmanship when used under normal conditions for two (2) years. Please complete and return the enclosed warranty card. For your reference, make a note of the serial number, date of purchase and supplier here.

Serial No.: _____ Date of Purchase: _____

Supplier: _____

INSTALLATION

Upon receiving the VWR 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 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 Hotplate/Stirrer/Hotplate-Stirrer is supplied with a power cord that is inserted into the IEC connector on the back of the unit first, then it can be plugged into a properly grounded outlet. The 120V unit plugs into a 120 volt, 50/60 Hz source. The 230V unit plugs into a 230 volt, 50/60 Hz source.

MAINTENANCE & SERVICING

The Hotplate/Stirrer/Hotplate-Stirrer is built for long, trouble-free, dependable service. 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 or top plate 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 VWR representative.

SAFETY INSTRUCTIONS

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

WARNING! DO NOT use the 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 unit or unplug 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.

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

CLEANING CERAMIC TOPS:

1. First remove any burnt-on deposits or spills from the top plate with a scraper (similar to scraping paint off of windowpanes in your home). For your safety, please wear an insulated mit when using a metal scraper.
2. When the top plate has cooled, apply a few dabs of a non-abrasive cleaner over the surface with a damp paper towel.
3. As a final step, clean with water and wipe surface with a clean, dry paper towel.

ENVIRONMENTAL CONDITIONS

Operating Conditions: Indoor use only.

Temperature: 5 to 40°C (41 to 104°F)
Humidity: 20% to 80% 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 80% relative humidity, non-condensing

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

Replace the ceramic top immediately if damaged. A damaged top can break in use.

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

 Earth Ground - Protective Conductor Terminal
 Alternating Current

STANDARDS & REGULATIONS

Henry Troemner LLC hereby declares under its sole responsibility that the construction of this product conforms in accordance with the following standards:

Safety standards:

IEC 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use. Part: General Requirements.

IEC 61010-2-010 Part II: Particular requirements for laboratory equipment for the heating of materials.

IEC 61010-2-051 Part II: Particular requirements for laboratory equipment for mixing and stirring.

UL Std. No. 61010-1

EMC standards:

| | |
|-------------------|-----------------|
| EN61326-1 Class A | EN61000-3-3/3-2 |
| EN6100-4-5 | EN61000-4-4 |
| EN55022-B | EN61000-4-3 |
| EN61000-4-11 | EN61000-4-6 |

Associated EU guidelines:

EMC directive 89/336/EEC
LVD directive 73/23/EEC
Machine directive 98/37/EC

4 x 4 HOTPLATE/STIRRER/HOTPLATE-STIRRER SPECIFICATIONS

Dimensions (L x W x H): 9 x 6 x 3.4" (22.9 x 15.2 x 8.6cm)
Top plate dimensions (L x W): 4 x 4" (10.2 x 10.2cm)
Electrical (50/60 Hz), ceramic:

| | Hotplate | Stirrer | Hotplate-Stirrer |
|-------|--------------------|-------------------|------------------|
| 120V: | 1.6 amps/190 watts | .50 amps/50 watts | 2 amps/240 watts |
| 230V: | .83 amps/190 watts | .25 amps/50 watts | 1 amps/240 watts |

Electrical (50/60 Hz), aluminum:

| | Hotplate | Stirrer | Hotplate-Stirrer |
|-------|--------------------|-------------------|--------------------|
| 120V: | 1.7 amps/200 watts | .50 amps/50 watts | 2 amps/250 watts |
| 230V: | .87 amps/200 watts | .25 amps/50 watts | 1.1 amps/250 watts |

Fuses 120V/230V: 5mm x 20mm, 5 amp quick acting

Temperature range:

| | | |
|---------------------|-----------|-----------------------|
| 600 Series Standard | ceramic: | 30°C to 500°C |
| | aluminum: | 30°C to 400°C |
| 700 Series Advanced | ceramic: | ambient +5°C to 500°C |
| | aluminum: | ambient +5°C to 400°C |

Temperature stability:

ceramic*: +/-3%
 aluminum*: +/-2%

Speed range:

ceramic: 60 to 1600rpm
 aluminum: 60 to 1600rpm

Speed stability: +/-2%

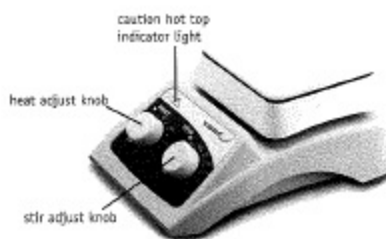
Capacity: 600mL, gross weight should not exceed 20lbs

Controls: see diagrams

Ship weight: 5.6lbs (2.5kg)

* Below 100°C +/-2°C. Environmental and sample conditions permitting.

600 SERIES STANDARD 4 X 4



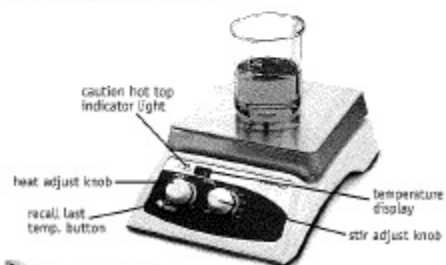
700 SERIES ADVANCED 4 X 4



600 SERIES STANDARD 7 X 7



700 SERIES ADVANCED 7 X 7



* Glassware not included.

7 X 7 HOTPLATE/STIRRER/HOTPLATE-STIRRER SPECIFICATIONS

Dimensions (L x W x H): 12.25 x 8.6 x 3.4" (31.1 x 21.8 x 8.6cm)

Top plate dimensions (L x W): 7 x 7" (17.8 x 17.8cm)

Electrical (50/60 Hz), ceramic:

| | Hotplate | Stirrer | Hotplate-Stirrer |
|-------|--------------------|-------------------|--------------------|
| 120V: | 7.3 amps/875 watts | .50 amps/50 watts | 7.5 amps/900 watts |
| 230V: | 3.8 amps/875 watts | .25 amps/50 watts | 3.9 amps/900 watts |

Electrical (50/60 Hz), aluminum:

| | Hotplate | Stirrer | Hotplate-Stirrer |
|-------|--------------------|-------------------|--------------------|
| 120V: | 5.2 amps/625 watts | .50 amps/50 watts | 5.4 amps/650 watts |
| 230V: | 2.7 amps/625 watts | .25 amps/50 watts | 2.8 amps/650 watts |

Fuses 120V/230V: 5mm x 20mm, 5 amp quick acting (Stirrer only)
 5mm x 20mm, 10 amp quick acting

Temperature range:

| | | |
|---------------------|-----------|-----------------------|
| 600 Series Standard | ceramic: | 30°C to 500°C |
| | aluminum: | 30°C to 400°C |
| 700 Series Advanced | ceramic: | ambient +5°C to 500°C |
| | aluminum: | ambient +5°C to 400°C |

Temperature stability:

ceramic*: +/-3%
 aluminum*: +/-2%

Speed range:

ceramic: 60 to 1600rpm
 aluminum: 60 to 1600rpm

Speed stability: +/-2%

Capacity: 2500mL, gross weight should not exceed 40lbs

Controls: see diagrams

Ship weight: 8.7lbs (3.9kg)

* Below 100°C +/-2°C. Environmental and sample conditions permitting.

10 X 10 HOTPLATE/STIRRER/HOTPLATE-STIRRER SPECIFICATIONS

Dimensions (L x W x H): 15.25 x 11.6 x 3.4" (38.7 x 29.5 x 8.6cm)

Top plate dimensions (L x W): 10 x 10" (25.4 x 25.4cm)

Electrical (50/60 Hz), ceramic:

| | Hotplate | Stirrer | Hotplate-Stirrer |
|-------|---------------------|-------------------|----------------------|
| 120V: | 8.5 amps/1025 watts | .50 amps/50 watts | 8.75 amps/1050 watts |
| 230V: | 4.5 amps/1025 watts | .25 amps/50 watts | 4.6 amps/1050 watts |

Electrical (50/60 Hz), aluminum:

| | Hotplate | Stirrer | Hotplate-Stirrer |
|-------|---------------------|-------------------|----------------------|
| 120V: | 8.5 amps/1025 watts | .50 amps/50 watts | 8.75 amps/1050 watts |
| 230V: | 4.5 amps/1025 watts | .25 amps/50 watts | 4.6 amps/1050 watts |

Fuses 120V/230V: 3AB fast acting, 3 amp (Stirrer only)
3AB fast acting, 15 amp

Temperature range:

| | | |
|---------------------|-----------|-----------------------|
| 600 Series Standard | ceramic: | 30°C to 500°C |
| | aluminum: | 30°C to 400°C |
| 700 Series Advanced | ceramic: | ambient +5°C to 500°C |
| | aluminum: | ambient +5°C to 400°C |

Temperature stability:

| | |
|------------|-------|
| ceramic*: | +/-3% |
| aluminum*: | +/-2% |

Speed range:

| | |
|-----------|---------------|
| ceramic: | 60 to 1600rpm |
| aluminum: | 60 to 1200rpm |

Speed stability:

+/-2%

Capacity: 6000mL, gross weight should not exceed 50lbs

Controls: see diagrams

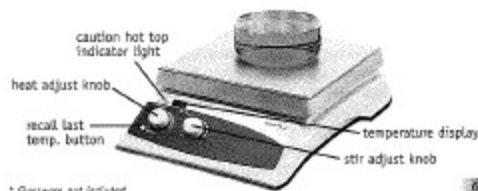
Ship weight: 14.6lbs (6.6kg)

* Below 100°C +/-2°C. Environmental and sample conditions permitting.

600 SERIES STANDARD 10 X 10



700 SERIES ADVANCED 10 X 10



* Glassware NOT included.

HEATING OPERATING INSTRUCTIONS

The Hotplates and Hotplate-Stirrers have a micro-processor controlled heater that is designed to bring samples to temperature quickly and accurately.

1. Getting ready:

- Turn the heat knob to the off position. Plug power cord into a properly grounded 3-prong outlet.
- Place a vessel with solution and the appropriate accessories in the center of the top plate. This is important because the vessel should be over the hottest part of the top plate.

2. Setting temperature for 600 Series Standard:

- Turn the heat knob clockwise until the pointer reaches the desired heat setting. The indicator light above the heat knob will illuminate to indicate the heating feature is in use.
- Temperature adjustments can be made without interrupting heating by turning the indicator knob clockwise to increase heat and counter-clockwise to decrease heat.
- To stop heating, turn the heat knob to the off position. Your vessel can then be removed.

3. Setting temperature for 700 Series Advanced:

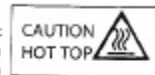
- Turn the heat knob clockwise until the display reaches the desired heat setting. The display will flash the set-point temperature until the temperature is reached, at which time the display will stop flashing. Removing or adding more to a sample content could cause the temperature to fluctuate. If this occurs, the display will again start to flash until the set-point value is stabilized.
- Temperature adjustments can be made without interrupting heating by turning the heat knob clockwise to increase heat or counter-clockwise to decrease heat.
- To stop heating, turn the heat knob to the off position. Your vessel can then be removed.

Overshoot protection:

If the unit exceeds set temperature by 10°C, the unit will automatically stop heating.

Caution hot top indicator:

The caution hot top indicator light warns that the top plate is too hot to touch. The caution hot top indicator light will illuminate when the heat is turned on and remain on until the top plate cools down.



Recall last temperature button:

Model 700 Series Advanced Hotplate/Hotplate-stirrers have a built-in memory that allows users to recall the last set temperature, even after the unit has been turned off. (The temperature in memory is the last temperature that ran for more than 5 minutes.)

OPERATING TIPS

The unit may overshoot the temperature up to 5°C before stabilizing at the set-point. The two methods suggested to minimize overshoot are:

- Metal containers minimize overshoot. However, when heating metal containers on a ceramic top it is recommended to use the lowest temperature setting possible to limit thermal stress to the ceramic top.
- If a glass vessel is used, anticipate overshoot. Start with a setting 5-10°C below the desired temperature. When the temperature stabilizes at this lower setting, turn the heat knob to the final temperature. Overshoot is then reduced to about 1°C.

The temperature display on the 700 Series Advanced units show the actual temperature of the plate, the vessel contents being heated may be at a lower temperature depending on the size and insulating qualities of the vessel. It may be beneficial to monitor the temperature of the vessel contents and adjust the set-point temperature accordingly.

STIRRING OPERATING INSTRUCTIONS

The micro-processor controlled ramping feature slowly increases speed until the set-point is reached. This feature helps to avoid splashing, improves magnetic coupling and provides excellent low end control. The micro-processor also monitors and regulates the stirring speed, sensing your requirements whether you're stirring an aqueous, viscous or semi-solid solution.

1. Getting ready:

- Turn stir knob to the off position. Plug power cord into a properly grounded 3-prong outlet.
- Place a vessel with solution and the appropriate accessories in the center of the top plate.

2. Setting speed:

- Turn the stir knob clockwise until the pointer reaches the desired speed setting. The indicator light above the stir knob will illuminate to indicate the stirring feature is in use.
- Speed adjustments can be made without interrupting stirring by turning the stir knob clockwise to increase speed, or counter-clockwise to decrease speed.
- To stop stirring, turn the stir knob to the off position. Your vessel can then be removed.

Stir protection for Hotplate-Stirrers:

If stirrer motor stops or fails, the unit will automatically shut down the heater.

OPERATING TIPS

The stirrer increases speed at a steady rate until the set-point is reached, if the stir 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, stir 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.

TROUBLESHOOTING (700 SERIES ADVANCED ONLY)

The following errors should **NOT** be addressed by the end user. Switch the unit off and contact your VWR representative for repairs.

| Error Code | Software Test | Cause |
|------------|-----------------------|---|
| E01 | System failure | Thermocouple disconnected |
| E02 | Heater system failure | Thermocouple failure Heating element failure |

E01 and E02 are heating errors. These errors will cause heating function to cease. Stirring functions will be un-affected.

| Error Code | Software Test | Cause |
|------------|----------------------|---|
| E03 | Motor system failure | Magnetic material has been placed near or on the top plate surface Rotor locked Motor failure Motor sensor failure |

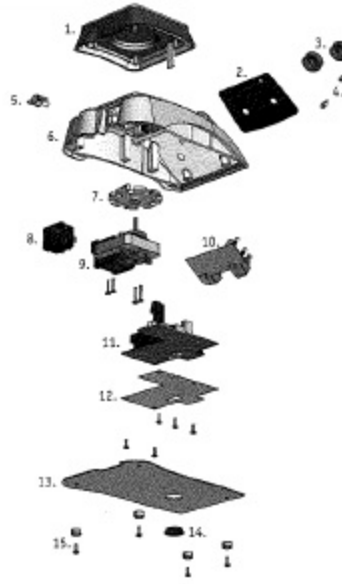
E03 is a stirring error. This error will cause stirring function to cease.

**DESCRIPTION
NUMBER**

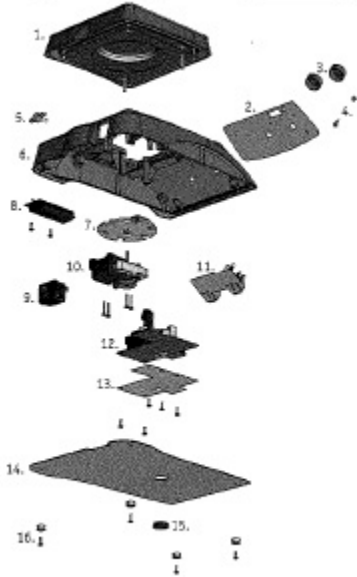
P A R T

| | | | |
|-----------------------------|---|-----------|-----------|
| 1. Top plate assembly: | 120V, ceramic, Hotplate, Hotplate-Stirrer | 886030-00 | |
| | 230V, ceramic, Hotplate, Hotplate-Stirrer | 886031-00 | |
| | 120V/230V, ceramic, Stirrer | 886032-00 | |
| | 120V, aluminum, Hotplate, Hotplate-Stirrer | 886033-00 | |
| | 230V, aluminum, Hotplate, Hotplate-Stirrer | 886034-00 | |
| 2. Front panel overlay: | 120V/230V, aluminum, Stirrer | 886035-00 | |
| | 600 Series, ceramic, Hotplate | 386600-00 | |
| | 600 Series, ceramic, Hotplate-Stirrer | 386602-00 | |
| | 600 Series, Stirrer | 386601-00 | |
| | 600 Series, aluminum, Hotplate | 386604-00 | |
| | 600 Series, aluminum, Hotplate-Stirrer | 386605-00 | |
| | 700 Series, ceramic, Hotplate | 386700-00 | |
| 3. Control knobs | | 286118-00 | |
| | 4. Last temperature (700 Series Advanced only): | switch | 386100-00 |
| | | button | 386101-00 |
| 5. Support stand thumb knob | | 586105-00 | |
| 6. Housing | | 286085-00 | |
| 7. Magnet assembly: | stirring units | 886036-00 | |
| 8. IEC module | | 386121-00 | |
| 9. Motor: | 120V units | 386860-00 | |
| | 230V units | 386037-00 | |
| 10. Control circuit board: | 600 Series, Hotplate | 386302-00 | |
| | 600 Series, Stirrer | 386303-00 | |
| | 600 Series, Hotplate-Stirrer | 386301-00 | |
| | 700 Series, Hotplate | 386306-00 | |
| | 700 Series, Hotplate-Stirrer | 386305-00 | |
| 11. Power circuit board: | 120V units | 386300-00 | |
| | 230V units | 386314-00 | |
| 12. Power board insulator | | 386102-00 | |
| 13. Base plate | | 286130-00 | |
| 14. Bottom plate plug | | 186109-00 | |
| 15. Feet | | 530052-00 | |

4 x 4 REPLACEMENT PARTS



7 x 7 REPLACEMENT PARTS



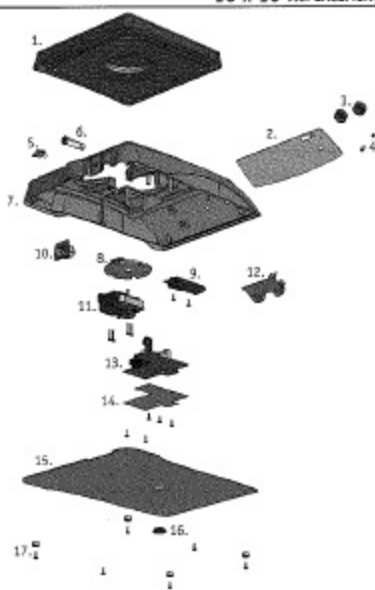
**DESCRIPTION
NUMBER**

P A R T

| | | | |
|-----------------------------|---|-----------|-----------|
| 1. Top plate assembly: | 120V, ceramic, Hotplate, Hotplate-Stirrer | 886037-00 | |
| | 230V, ceramic, Hotplate, Hotplate-Stirrer | 886038-00 | |
| | 120V/230V, ceramic, Stirrer | 886039-00 | |
| | 120V, aluminum, Hotplate, Hotplate-Stirrer | 886040-00 | |
| | 230V, aluminum, Hotplate, Hotplate-Stirrer | 886041-00 | |
| 2. Front panel overlay: | 120V/230V, aluminum, Stirrer | 886042-00 | |
| | 600 Series, ceramic, Hotplate | 386606-00 | |
| | 600 Series, ceramic, Hotplate-Stirrer | 386610-00 | |
| | 600 Series, Stirrer | 386603-00 | |
| | 600 Series, aluminum, Hotplate | 386612-00 | |
| | 600 Series, aluminum, Hotplate-Stirrer | 386614-00 | |
| | 700 Series, ceramic, Hotplate | 386703-00 | |
| 3. Control knobs | | 286118-00 | |
| | 4. Last temperature (700 Series Advanced only): | switch | 386100-00 |
| | | button | 386101-00 |
| 5. Support stand thumb knob | | 586105-00 | |
| 6. Housing | | 286086-00 | |
| 7. Magnet assembly: | stirring units | 886043-00 | |
| 8. Line filter: | 230V, Hotplate, Hotplate-Stirrer | 387022-00 | |
| 9. IEC module | | 386122-00 | |
| 10. Motor: | 120V units | 386860-00 | |
| | 230V units | 386037-00 | |
| 11. Control circuit board: | 600 Series, Hotplate | 386302-00 | |
| | 600 Series, Stirrer | 386303-00 | |
| | 600 Series, Hotplate-Stirrer | 386301-00 | |
| | 700 Series, Hotplate | 386306-00 | |
| | 700 Series, Hotplate-Stirrer | 386305-00 | |
| 12. Power circuit board: | 120V units | 386300-00 | |
| | 230V units | 386314-00 | |
| 13. Power board insulator | | 386102-00 | |
| 14. Base plate | | 286131-00 | |
| 15. Bottom plate plug | | 186109-00 | |

| DESCRIPTION | | PART NUMBER |
|---|--|-------------|
| 1. Top plate assembly: | 120V, ceramic, Hotplate, Hotplate-Stirrer | 886044-00 |
| | 230V, ceramic, Hotplate, Hotplate-Stirrer | 886045-00 |
| | 120V/230V, ceramic, Stirrer | 886046-00 |
| | 120V, aluminum, Hotplate, Hotplate-Stirrer | 886047-00 |
| | 230V, aluminum, Hotplate, Hotplate-Stirrer | 886048-00 |
| 2. Front panel overlay: | 120V/230V, aluminum, Stirrer | 886048-00 |
| | 600 Series, ceramic, Hotplate | 386616-00 |
| | 600 Series, ceramic, Stirrer | 386617-00 |
| | 600 Series, ceramic, Hotplate-Stirrer | 386618-00 |
| | 600 Series, aluminum, Hotplate | 386620-00 |
| | 600 Series, aluminum, Stirrer | 386621-00 |
| | 600 Series, aluminum, Hotplate-Stirrer | 386622-00 |
| | 700 Series, ceramic, Hotplate | 386716-00 |
| 700 Series, ceramic, Hotplate-Stirrer | | 386718-00 |
| | 700 Series, aluminum, Hotplate | 386720-00 |
| 700 Series, aluminum, Hotplate-Stirrer | | 386722-00 |
| 3. Control knobs | | 286116-00 |
| 4. Last temperature (700 Series Advanced only): | switch | 386100-00 |
| | button | 386101-00 |
| 5. Support stand thumb knob | | 606125-00 |
| 6. Fuse holder | | 320001-00 |
| 7. Housing | | 200087-00 |
| 8. Magnet assembly: | ceramic w/rits | 886050-00 |
| | aluminum w/rits | 886051-00 |
| 9. Live filter: | 230V, Hotplate, Hotplate-Stirrer | 387022-00 |
| 10. IEC module | | 386125-00 |
| | | 386880-00 |
| 11. Motor: | 120V w/rits | 386817-00 |
| | 230V w/rits | 386302-00 |
| 12. Control circuit board: | 600 Series, Hotplate | 386303-00 |
| | 600 Series, Stirrer | 386304-00 |
| | 600 Series, Hotplate-Stirrer | 386305-00 |
| | 700 Series, Hotplate | 386306-00 |
| 700 Series, Hotplate-Stirrer | | 386308-00 |
| | | 386309-00 |
| 13. Power circuit board: | 120V w/rits | 386300-00 |
| | 230V w/rits | 386314-00 |
| 14. Power board insulator | | 386102-00 |
| 15. Base plate | | 286132-00 |
| 16. Bottom plate plug | | 186106-00 |
| 17. Feet | | 530052-00 |

10 x 10 REPLACEMENT PARTS



MANUFACTURED BY:

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586048-00

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