# Type HP18300
## Nuova II Hot Plates

**OPERATION MANUAL**
**AND PARTS LIST**
**SERIES 756**

<table>
<thead>
<tr>
<th>Model #</th>
<th>Top Plate Size (cm)</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP18320</td>
<td>7” x 7” (18 x 18)</td>
<td>220-240</td>
</tr>
<tr>
<td>HP18320-26</td>
<td>7” x 7” (18 x 18)</td>
<td>220-240</td>
</tr>
<tr>
<td>HP18324</td>
<td>7” x 7” (18 x 18)</td>
<td>100</td>
</tr>
<tr>
<td>HP18325</td>
<td>7” x 7” (18 x 18)</td>
<td>120</td>
</tr>
</tbody>
</table>
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Safety Information

This manual contains important operating and safety information. You should carefully read and understand the contents of this manual prior to the use of this equipment.

Safety Information

Your Thermolyne Nuova II Hot Plate has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

Warnings

1. Do not immerse unit for cleaning.

2. As with all laboratory equipment, appropriate safety clothing, glasses, gloves and coats should be worn when operating hot plates. Always use appropriate hand and eye protection when handling hazardous chemicals.

3. DO NOT remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard. Not rated for use in hazardous atmospheres.

4. Do not use in the presence of flammable or combustible chemicals; top surface and element can reach the “Flash Point Temperature” of many chemicals. THESE HOT PLATES ARE NOT EXPLOSION
**SAFETY INFORMATION**

**PROOF.** Fire or explosion may result. Unit contains components which may ignite such materials.

5. “Caution: Hot Surface. Avoid Contact.” The top plate will remain hot without visual indication for some time after the unit has been turned off.

**To avoid electrical shock:**

1. Always use a properly grounded electrical outlet with correct voltage and current handling capacity.

2. Disconnect from power supply before servicing.

3. Refer servicing to qualified personnel.
Please note the following WARNINGS:

Warning

This warning is presented for compliance with California Proposition 65 and other regulatory agencies and only applies to the insulation in this product. This product contains refractory ceramic, refractory ceramic fiber or fiberglass insulation, which can produce respirable dust or fibers during disassembly. Dust or fibers can cause irritation and can aggravate preexisting respiratory diseases. Refractory ceramic and refractory ceramic fibers (after reaching 1000°C) contain crystalline silica, which can cause lung damage (silicosis). The International Agency for Research on Cancer (IARC) has classified refractory ceramic fiber and fiberglass as possibly carcinogenic (Group 2B), and crystalline silica as carcinogenic to humans (Group 1).

The insulating materials can be located in the door, the hearth collar, in the chamber of the product or under the hot plate top. Tests performed by the manufacturer indicate that there is no risk of exposure to dust or respirable fibers resulting from operation of this product under normal conditions. However, there may be a risk of exposure to respirable dust or fibers when repairing or maintaining the insulating materials, or when otherwise disturbing them in a manner which causes release of dust or fibers. By using proper handling procedures and protective equipment you can work safely with these insulating materials and minimize any exposure. Refer to the appropriate Material Safety Data Sheets (MSDS) for information regarding proper handling and recommended protective equipment. For additional MSDS copies, or additional information concerning the handling of refractory ceramic products, please contact the Customer Service Department at Barnstead|Thermolyne Corporation at 1-800-553-0039.

⚠️ Warning
Refer servicing to qualified personnel.
Introduction

The Type 18300 hot plates are general purpose heating devices intended for laboratory procedures requiring temperatures from 38°C (100°F) to 371°C (700°F). These hot plates are not to be used in the presence of explosive vapors; this device contains components which may ignite such materials. The unit consists of (1) a heated plate, and (2) an adjustable temperature control.

Principles of operation

The heating surface is comprised of glass bonded to a steel plate, the glass providing excellent corrosion resistance, the metal aiding in uniform heat distribution. The heating plate temperature is controlled by a bimetallic thermostat. The plate and thermostat are supported by a metal enclosure which serves to house all the electrical connections.
Specifications

Electrical Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Volts</th>
<th>Amps</th>
<th>Watts</th>
<th>Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP18320</td>
<td>220-240</td>
<td>3.5</td>
<td>840</td>
<td>50/60</td>
</tr>
<tr>
<td>HP1830-26</td>
<td>220-240</td>
<td>3.5</td>
<td>840</td>
<td>50/60</td>
</tr>
<tr>
<td>HP18324</td>
<td>100</td>
<td>8.4</td>
<td>840</td>
<td>50/60</td>
</tr>
<tr>
<td>HP18325</td>
<td>120</td>
<td>7.0</td>
<td>840</td>
<td>50/60</td>
</tr>
</tbody>
</table>

General Specifications

Overall dimensions of all hot plates:
11.875 inches x 4.500 inches x 8.625 inches (30.16 x 11.43 x 21.91 cm).

All models weight 7.3 pounds, and their maximum temperature is 371°C (700°F).
Installation

⚠️ **Warning**
Always use a properly grounded electrical outlet with correct voltage and current handling capacity.

DO NOT remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard. Not rated for use in hazardous atmospheres.

⚠️ **Caution**
Space unit at least 12 inches from combustible walls.

Install the hot plate on a level, sturdy surface and allow space for ventilation.

The electrical specifications are listed on the specification plate on the back of the hot plate. Consult Barnstead Thermolyne if your electrical service is different from those listed on the specification plate. Prior to connecting your Type 18300 hot plate to your electrical supply, be sure the dial switch is in the “off” position.
The "Temperature" control is a combination "ON-OFF" switch and setting selector. The hot plate is on at any setting of the dial switch at or beyond the "1" position on the dial. Turn the dial switch clockwise to set the desired temperature. Dial marks indicate approximate surface temperature — the numbers correspond to increments of approximately 40°C (e.g. "5" gives approximately 200°C). The cycle light will illuminate at or near the "1" position on the dial (if this does not occur, see the "Recalibration" section). When the temperature for a given dial setting has been reached, the light will cycle off and on to hold that temperature. If the cycle light is off, the hot plate may still be hot. To turn the hot plate off, turn the dial switch to the fully counterclockwise position.

Operational Precautions

1. Place the vessel and its contents directly on the glass-coated top plate prior to turning the heat control knob to "ON." The vessel or an equivalent load should be placed on the top plate while the unit is cooling down. Failure to follow these steps could result in the glass material separating (fritting) from the metal core of the top.

2. Avoid using the unit in highly corrosive atmospheres. Corrosive fumes and/or corrosive liquid spills may damage the top plate and internal components.

3. Gross weight of items placed on top of the hot plate should not exceed 15 lbs.

4. Do not use metal foil, metal containers, sand baths or other insulating material on the hot plate.

Warning
As with all laboratory equipment, appropriate safety clothing, glasses, gloves and coats should be worn when operating hot plates. Always use appropriate hand and eye protection when handling hazardous chemicals.

Do not use in the presence of flammable or combustible chemicals; top surface and element can reach the "Flash Point Temperature" of many chemicals. THESE HOT PLATES ARE NOT EXPLOSION PROOF. Fire or explosion may result. Unit contains components which may ignite such materials.

"Caution: Hot Surface. Avoid Contact.” The top plate will remain hot without visual indication for some time after the unit has been turned off.
Maintenance and Servicing

**Warning**
To avoid electrical shock, disconnect from power supply before servicing.

Refer servicing to qualified personnel.

**Note**
Do not use emery paper or sandpaper with a course grit to clean contact points.

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**Preventive Maintenance**

Bimetal control contact points may need cleaning after severe or extended use. To clean the contact points:

1. Disconnect the hot plate from power supply.
2. Turn the hot plate upside down and remove bottom cover.
3. The contact points are accessible now and may be cleaned with fine sandpaper or a contact file.
4. If contact points are severely pitted or burned, replacement is suggested at this time (refer to the section “Replacing the control”).
5. Replace bottom cover and secure.
6. Turn the hot plate upright and reconnect to power supply.

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**Troubleshooting Guide**

<table>
<thead>
<tr>
<th><strong>Problem</strong></th>
<th><strong>Possible Causes</strong></th>
<th><strong>Solutions</strong></th>
</tr>
</thead>
</table>
| Cycle light does not illuminate. | Hot plate not connected to power supply.  
                                | Cycle light burned out.                      | Check hot plate connection to power source.  
                                |                                          | Replace cycle light.                  |
| Hot plate does not heat.  | No power.                                               | Check power source and fuse.                
                                | Defective electrical hookup.                | Repair electrical hookup.               
                                | Burned out heating element.                 | Replace defective element.             
                                | Burned out heater coil on control.          | Replace heater coil.                  |
| Hot plate does not hold temperature. | Control out of calibration.  
                                | Control has failed.                          | Refer to the section “Recalibrating control”.  
                                |                                          | Replace control.                      |
Replacing adjusting-shaft insulator
1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove the retaining clip.
4. Loosen set screw on stop collar and turn the adjusting shaft out of the control to remove insulator.
5. Insert new insulator. Turn the adjusting shaft into the control until the contacts make contact. (Note: Be sure that the washer/spacer is still positioned against the backside of the knob.)
7. Turn shaft out until .015" dimension is achieved, as shown.
8. Recalibrate the control according to the "Recalibrating the Control" section.

Replacing heater coil
1. Disconnect hot plate from power supply.
2. Turn hot plate upside down and remove bottom cover.
3. Remove nut and washer from contact stud, then remove one end of heater coil.
4. Remove opposite end of heater coil by sliding terminal off of the tab.

5. Install new heater coil.

6. Replace bottom cover and secure.

7. Turn hot plate upright and reconnect to power supply.

Replacing cycle light

1. Disconnect hot plate from power supply.

2. Turn hot plate upside down and remove bottom cover.

3. Remove clip from cycle light. Disconnect the two wires from cycle light.

4. Remove the cycle light.

5. Insert new cycle light and secure with clip.

6. Reconnect wires to the cycle light.

7. Replace bottom cover and secure.

8. Turn hot plate upright and reconnect to power supply.

Replacing the control

1. Disconnect hot plate from power supply.

2. Turn hot plate upside down and remove bottom cover.

3. Remove knob and washer/spacer from adjusting shaft.

4. Disconnect the two wires from the control.

Note
To prevent short circuit and for best results, position heater coil parallel to bimetal contact arm with 13/64" clearance.
5. Remove the two hex nuts retaining the control to the element.

6. Remove control from the element.

7. Remove the heater coil. Install the heater onto the new control. Adjust the position of the heater coil as described in the "Replacing the Heater Coil" section.

8. Secure the new control to the element with the two hex nuts.

9. Reconnect the two wires disconnected in step 4.

10. Replace the washer/spacer onto the adjusting shaft.

11. Recalibrate the unit according to the "Recalibrating the Control" section.

Replacing the heating element
1. Disconnect hot plate from power supply.

2. Turn hot plate upside down and remove bottom cover.

3. Remove the knob and washer/spacer from the adjusting shaft.

4. Disconnect the two wires from the control.

5. Remove the two hex nuts retaining the control to the element.

6. Remove the control from the element.

7. Disconnect two element lead wires from the terminal block.

8. Remove the four hex nuts retaining the top plate assembly.
9. Remove the top plate assembly from the unit.

10. Disassemble the top plate assembly.

11. Reassemble the top plate assembly with the new element according to the exploded view.

12. Reinstall the top plate assembly onto the unit. Reinstall the hex nuts to secure the top plate assembly to the unit.

13. Replace the control and secure with two hex nuts.

14. Reconnect the wires to their correct positions.

15. Reinstall the washer/spacer and knob onto the adjusting shaft.

16. If necessary, readjust the heater coil, making it parallel to the bimetal contact arm with $\frac{13}{64}$” clearance.

17. Replace the bottom cover and secure.

18. Turn the hot plate upright and reconnect to the power supply.

**Recalibrating the control**

1. Disconnect hot plate from power supply.

2. Turn hot plate upside down and remove bottom cover.

3. Remove the knob from the adjusting shaft by removing set screw.

4. Loosen the set screw in the stop collar. (See Figure 1.)
5. Turn the shaft until the contacts just close and slide knob over shaft with the number “1” aligned with the pointer line.

6. Tighten the knob to the shaft. Leave \( \frac{1}{8} \)" of space between the knob and the dial plate.

7. Turn the knob counterclockwise until the number “0” aligns with pointer line and readjust the stop collar in the "Off" position.

8. Tighten set screw on stop collar and check for free rotation of the control shaft between stops.

9. Replace bottom cover and secure.

10. Turn hot plate upright and reconnect to power supply.
Exploded View

See exploded view at right
# Replacement Parts Listing

**Model Number(s):** HP18325, HP18324, HP18320, HP18320-26  
**Product Name:** Thermolyne Nuova II Hot Plate  
**Series Number:** 756

<table>
<thead>
<tr>
<th>Key</th>
<th>Part # (Qty)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT708X1A</td>
<td>Plate assembly</td>
</tr>
<tr>
<td>2</td>
<td>EL707X1B</td>
<td>Heating element, 120V (for models HP18325)</td>
</tr>
<tr>
<td>&quot;</td>
<td>EL707X2B</td>
<td>Heating element, 240V (for models HP18320, HP18320-26)</td>
</tr>
<tr>
<td>&quot;</td>
<td>EL757X1A</td>
<td>Heating element, 100V (for models HP18324)</td>
</tr>
<tr>
<td>3</td>
<td>JC707X2</td>
<td>Insulation</td>
</tr>
<tr>
<td>4</td>
<td>PT707X2</td>
<td>Plate assembly</td>
</tr>
<tr>
<td>5</td>
<td>CR163X1</td>
<td>Cord set, 100/120V (for models HP18324, HP18325)</td>
</tr>
<tr>
<td>&quot;</td>
<td>CR163X2</td>
<td>Cord set, 240V (for model HP18320)</td>
</tr>
<tr>
<td>&quot;</td>
<td>CR727X3</td>
<td>Cord set, 240V (for model HP18320-26)</td>
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<tr>
<td>6</td>
<td>CN757X1</td>
<td>Control</td>
</tr>
<tr>
<td>7</td>
<td>HT757X3A</td>
<td>Heater coil assembly, 100V (for HP18324)</td>
</tr>
<tr>
<td>&quot;</td>
<td>HT757X2A</td>
<td>Heater coil assembly, 240V (for models HP18320, HP18320-26)</td>
</tr>
<tr>
<td>&quot;</td>
<td>HT757X1A</td>
<td>Heater coil assembly, 120V (for models HP18325)</td>
</tr>
<tr>
<td>8</td>
<td>SF757X1</td>
<td>Shaft</td>
</tr>
<tr>
<td>9</td>
<td>PLX108</td>
<td>Pilot light, 100/120V (for models HP18324, HP18325)</td>
</tr>
<tr>
<td>&quot;</td>
<td>PLX109</td>
<td>Pilot light, 240V (for models HP18320, HP18320-26)</td>
</tr>
<tr>
<td>10</td>
<td>KBX83</td>
<td>Knob</td>
</tr>
</tbody>
</table>
Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Barnstead|Thermolyne dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.

Prior to returning any materials to Barnstead|Thermolyne Corp., please contact our Customer Service Department for a “Return Goods Authorization” number (RGA). Material Returned without an RGA number will be returned.
Barnstead|Thermolyne Corporation warrants that if a product manufactured by Barnstead|Thermolyne and sold by it within the continental United States or Canada proves to be defective in material or construction, it will provide you, without charge, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for one (1) year, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by Barnstead|Thermolyne or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized Barnstead|Thermolyne dealer or Barnstead|Thermolyne (at its own discretion). Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by Barnstead|Thermolyne. The name of the authorized Barnstead|Thermolyne dealer nearest you may be obtained by calling 1-800-446-6060 (319-556-2241) or writing to:

Barnstead|Thermolyne
P.O. Box 797
2555 Kerper Boulevard
Dubuque, IA 52004-0797
USA
FAX: (319) 589-0516
E-MAIL ADDRESS: mkt@barnstead.com

Barnstead|Thermolyne’s sole obligation with respect to its product shall be to repair or (at its own discretion) replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

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