

# User Instructions



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## INSTRUCTION NOTES FOR THE GLAS-COL PREMIER HEATING MANTLE

The Premier Mantle comes with a built-in proportional power control for precise control of your operations. This control is a manually adjusted solid state power controller. It is designed to provide precise and variable voltage control. However, if you should want to use an external temperature control, the Premier Mantle is equipped to accept external controls as well. This makes the Premier Mantle a versatile addition to any laboratory.

Designed with safety in mind, the Premier Mantle has a spill-capture system that no other heating mantle can equal. This system includes:

- a removable and replaceable stainless steel foil liner
- an integral catch pan (in accordance with NFPA standard #45)

These two features help capture spills so they can be easily and safely contained and removed. This virtually eliminates the danger of damage to the heating elements and mantle control and protects your personnel from hot or caustic solutions. But, in the event the heating element must be replaced, it is easy and quick to do in the field.

To make the Premier Mantle even safer, it is encased in a UL fire-rated plastic enclosure. And for added safety, the mantle's cabinet:

- is chemical resistant
- remains cool to the touch during operation
- is self supporting on non-skid feet

Each Glas-Col Premier Mantle is designed to fit a specific size and shape of vessel. For maximum efficiency and safety, do not use a mantle with a vessel other than that for which it was designed to fit.

The Glas-Col Premier Mantle consists of an insulated electrical-resistance element and requires a controlled electrical power source. The use of the built-in power control or external manual power controls, or automatic temperature controllers is recommended to prevent overheating and to affect accurate temperature control. A selection of temperature and voltage control devices is available from Glas-Col if external control is desired.

The limitation in the operation of the Glas-Col Premier Mantle is the maximum temperature allowed for the heating zone (area inside mantle where heating element is located). This is 450 degrees C.

Some mantles have more than one heating zone. The power input to each zone should be controlled with a suitable control device. If liquid level drops in the vessel, the upper heating zone should be operated at reduced power or turned off. When the liquid level reaches the top of a particular heating zone, the input to that zone should be reduced. As the liquid level approaches the bottom of a particular heating zone, that zone should be turned off. For low-boiling liquids, when the liquid level approaches the top of a zone, that zone may be turned off.

When using the built-in power control or external manual controls, the mantle and the vessel will get hotter as the liquid level drops. The operator should compensate for this by reducing the power input as the level drops.

### **How to Setup and Operate**

First place the flask, with material, to be heated within the mantle and connect all accessory glassware and equipment if applicable. The mounting clamp at the rear of the mantle will accept a ½” diameter rod for supporting accessory glassware.

Next plug the control line cord into the appropriate 3-wire grounded power receptacle.

Push the power switch to the “ON” position to apply power. The lighted power switch indicates power to the mantle. Turn the control knob to the desired setting. As the knob setting is increased, voltage to the load increases. Full line voltage is applied at a dial setting of 100.

Manual power controls require experimentation to achieve the desired control setting for a particular application. The built-in proportional power control offers precise repeatability once the desired setting has been determined.

If the use of an external temperature controller is desired (such as the Glas-Col 104A PL612 DigiTrol), plug the line cord of the mantle into the load receptacle of the temperature controller. Turn the knob to the “EXT.” setting on the dial. Plug the line cord of the temperature controller into the appropriate 3-wire outlet and follow the user instructions supplied with the external control.

## **Specifications**

Electrical: With integral 4ft. – 3 wire cord. Power on indicator, circuit protector, plus output level light.

Control: Nearly linear from 2 to 100% of rated voltage.

Finish: Foxtip gray and charcoal.

### Replacement Parts:

100F LS2106E = Replaceable heating element for 500ml mantle, 120 Volts

100F LS2107E = Replaceable heating element for 500ml mantle, 240 Volts

100F LS2108E = Replaceable heating element for 1000ml mantle, 120 Volts

100F LS2109E = Replaceable heating element for 1000ml mantle, 120 Volts

(Replaceable heating element assembly includes: foil liner, heating coil, & rigid insulation with foil cover.)

100F LS2106L = Replaceable stainless steel foil for 500ml mantle

100F LS2108L = Replaceable stainless steel foil for 1000ml mantle

(Replaceable stainless steel foil liners furnished in package of 2 each.)

## **Safety and Caution Messages:**

- Always follow your company safety procedures when using laboratory equipment such as heating mantles. In addition, there are numerous safety references such as The National Safety Council, American Chemical Society, National Fire Protection Association, etc. Such references often apply to your specific discipline and procedure.
- Heaters and the vessels they heat get hot. The Premier Mantle will remain cool to the touch during operation. Allow glassware to cool before handling. If it is necessary to handle equipment while hot, use gloves or other appropriate heat shielding.
- Never charge or pour material into a hot vessel. Fill or charge your cool vessel away from the mantle and clean off the outside of the vessel. Then place the vessel in the cool mantle.
- Do not spill material of any kind in a heating mantle. However, if spillage does occur, it will be channeled into the catch pan within the mantle. Any material that accumulates in the catch pan may then be disposed of or reclaimed. **MAKE SURE TO CHECK AND CLEAN THE CATCH PAN AT REGULAR INTERVALS.**
- Keep power cords, condenser tubes, and any combustible or hazardous materials away from heating mantles. Always ensure all safety equipment is in proper use, i.e., hoods, apparel, shields, etc.

- Always operate Premier Heating Mantles through the built in power control or external temperature controllers. Do not turn the controller high than necessary to complete your specific task.
- Do not heat vessels which show signs of wear or damage such as cracks, scratches, or chips.
- Do not alter the cords or plugs of mantles or temperature regulating devices.
- Always operate mantles from properly grounded receptacles and on clean, dry, and noncombustible work surfaces.
- Mantles should be inspected regularly. Do not use if the liner, power cords, or other parts are worn or damaged in any way.
- Mantles have heating capacity for a wide variety of applications. Refer to published laboratory procedures for the specific material being heated.
- Do not operate any mantle beyond its rated voltage.
- It is good laboratory practice to monitor any heater. Heaters which must be left unattended should be operated through automatic temperature limiting controls.

### **Maintenance:**

With proper care and operation, Glas-Col Premier mantles will give long and efficient service. Contamination, overheating, and general misuse will greatly reduce the life of a mantle.

Maintenance of the Glas-Col Premier Mantle consists of regular inspection for damage. Any damage which occurs to the mantle should be repaired before using it.

Simple preventative maintenance steps include keeping the mantle fairly clean. Protect it from excessive spillage, overheating, and corrosive environments.

### **Limited Warranty:**

Glas-Col warrants products of its manufacture to be free from defects in material and workmanship for one year and agrees to repair or replace without charge any products found defective upon examination at the factory. With proper care and operation, Glas-Col products will give long and efficient service. Chemical spillage, overheating, overloading and general misuse will greatly reduce the service life. Glas-Col is not responsible for damage to apparatus due to improper installation or through attempts to operate the apparatus beyond its rated capacity, intentional or otherwise. Normally expendable parts are not covered by this warranty.

In the event of an incident due to a defective replacement component, Glas-Col will accept responsibility only if the component was defective from the outset. Glas-Col reserves the right to deny responsibility for

the incident if the user fails to comply with any instructions provided by using spare parts, which are not guaranteed.

APART FROM SUCH WRITTEN STATEMENT OF WARRANTY, THERE ARE NO WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY WHICH EXTEND BEYOND THE DESCRIPTION OF THE PRODUCTS ON THE FACE HEREOF.

Glas-Col products are intended only for legal and legitimate purposes in commercial, laboratory and industrial settings.

Glas-Col reserves the right to make product refinements without prior notice.

**Returns:**

Call or fax Customer Service for a Return Goods Authorization (RGA) number before returning a Glas-Col product.

Reference the RGA number on the shipping box and on a written description of the problem.

A 20% restock charge of the net price is charged for all standard product returned to stock.

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