

# Axygen® PlateMax™ Semi-automated Plate Sealer

**Axygen**

A Corning Brand

## Instruction Manual

### Catalog Numbers:

HS-1120

HS-1230



UK  
CA CE

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## 1.0 Introduction

### 1.1 Overview

The Axygen® PlateMax™ semi-automated plate sealer is used for heat sealing of a wide variety of microplates to store samples, prevent evaporation, and minimize contamination.

It thermally bond seals and foils to a wide variety of microtiter, cell culture, PCR, and deep well plates. The digital temperature and timer control allows user selection of parameters for combinations of plates and seals.

A plate sensing system allows the plate sealer to provide uniform force, transferring heat evenly to the sealing surface whether using shallow PCR plates or deep well plates.

### 1.2 Symbols and Conventions



**CAUTION:** This symbol refers you to important operating and maintenance (servicing) instructions within the product Instruction Manual. Failure to heed this information may present a risk of damage or injury to persons or equipment.



**CAUTION:** To avoid accidental bodily harming or burning be very careful touching the metal parts of the unit. It can be very hot after it is used at high temperatures. Allow the metal parts to cool down before handling.

### 1.3 Safety Information

This instruction manual contains important operating and maintenance instructions which must be read, understood, and followed by the product user. Failure to use this product according to this instruction manual may degrade or defeat the protection normally provided by this product. Read this instruction manual prior to product use.



#### Personal Injury

- ▶ Do not use this product in a manner other than as stated in the Operating Conditions section of this manual as the protection provided by the equipment may be impaired.
- ▶ This product is designed for use in laboratory environments by persons knowledgeable in safe laboratory practices.
- ▶ Always wear safety glasses and other appropriate protective equipment when operating this product.

#### Electric Shock

- ▶ This product must be connected to a grounded power outlet for safe functioning.
- ▶ Use only the power cord supplied with the product.
- ▶ The power cord is the device available for full disconnect from mains input.
- ▶ Position the product for use so that the power cord can be easily disconnected without having to move the product.
- ▶ Disconnect the power cord before moving or cleaning the unit.

#### Product Damage

- ▶ Keep the product dry and clean.
- ▶ Do not immerse the product in liquid for cleaning.
- ▶ These units are not explosion- or spark-proof.
- ▶ Do not operate this product near volatile or flammable materials.

## 1.4 Specifications

<b>Dimensions (W x D x H)</b>	6.75 x 12.75 x 14.25 in. (17.1 x 32.4 x 36.2 cm)
<b>Weight</b>	27 lbs. (12 kg)
<b>Sealing Temperature</b>	Off, 100°C to 190°C (increments of 1.0°C)
<b>Temperature Accuracy</b>	±1.0°C
<b>Temperature Uniformity</b>	±1.0°C
<b>Sealing Time</b>	0.5 to 10 sec. (increments of 0.1 sec.)
<b>Compatible Plate Materials</b>	<ul style="list-style-type: none"><li>▶ PP (Polypropylene)</li><li>▶ PS (Polystyrene)</li></ul>
<b>Compatible Plate Types</b>	<ul style="list-style-type: none"><li>▶ Standard assay plates</li><li>▶ Deep well storage plates</li><li>▶ PCR plates: skirted, semi-skirted, non-skirted</li></ul>
<b>Maximum Plate Height</b>	1.77 in. (4.5 cm)
<b>Compatible Sealing Film Types</b>	<ul style="list-style-type: none"><li>▶ Foil polypropylene laminate</li><li>▶ Film types: Clear polyester-polypropylene laminate</li><li>▶ Clear polymer</li><li>▶ Thin clear polymer</li><li>▶ Foil laminate</li><li>▶ Foil</li></ul>
<b>Electrical Requirements</b>	
<b>HS-1120</b>	120V ±10%, 50/60 Hz, 450W, 3.15A
<b>HS-1230</b>	230V ±10%, 50/60 Hz, 450W, 2A
<b>Overvoltage Category</b>	Category II
<b>Environmental Conditions</b>	15°C to 30°C, ≤80% RH
<b>Storage Temperatures</b>	0°C to 60°C

The Axygen® PlateMax™ semi-automated plate sealer is designed to be safe at least when operated under the following conditions:

- ▶ Indoor use
- ▶ Altitude up to 2,000 meters
- ▶ Pollution Degree 2

Product should be placed on a flat surface at least 12 in. (30.5 cm) from walls, 48 in. (122 cm) from ceilings, and 12 in. (30.5 cm) from other equipment.

## 2.0 Getting Started

### 2.1 Installation

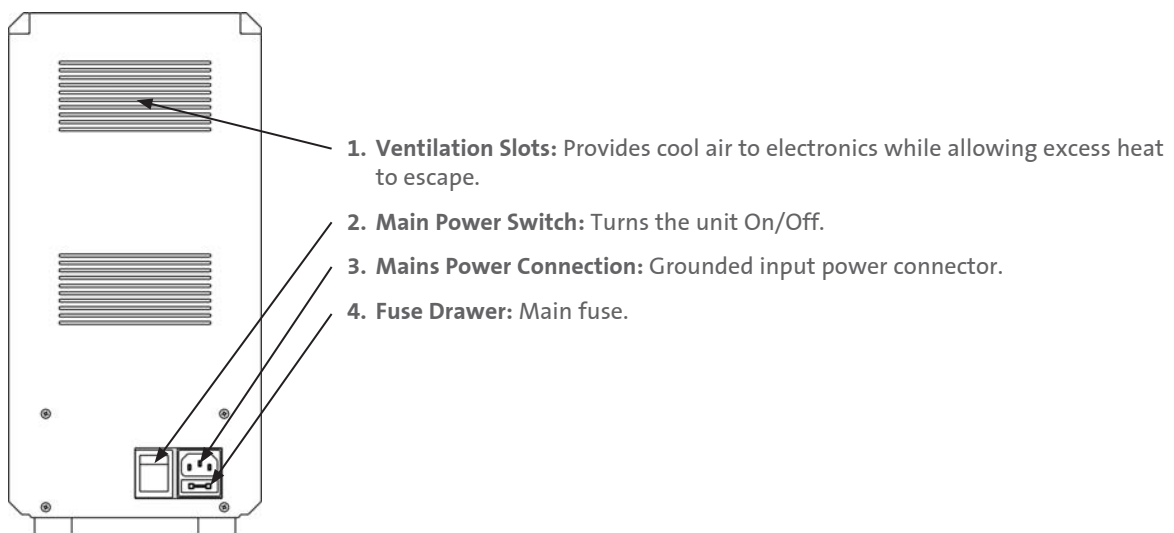
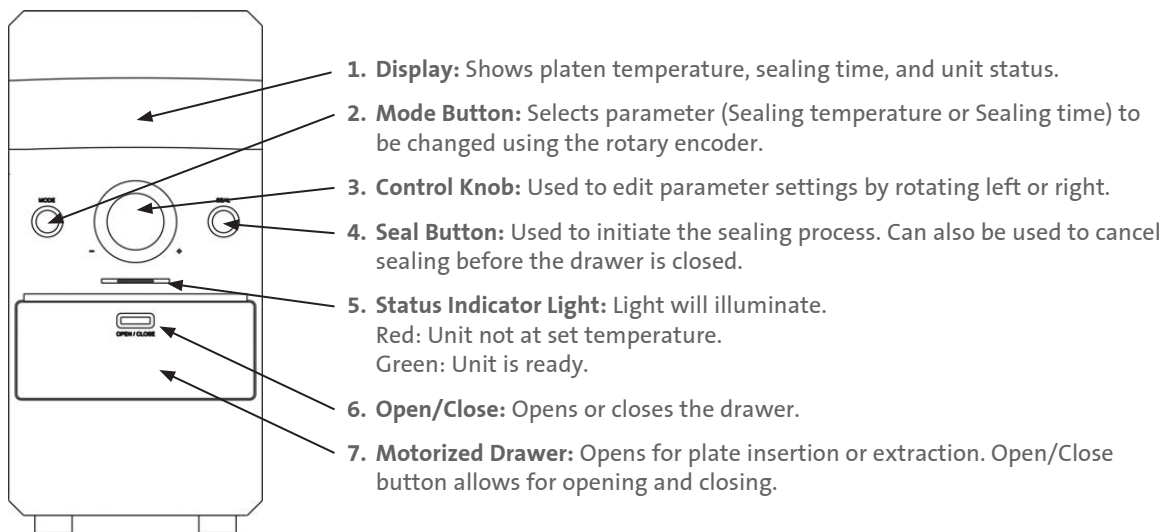
1. Unpack the instrument carefully and place on a level stable surface that can withstand its weight. Do not block ventilation openings on the back.
2. Remove and identify all components from the box.
  - ▶ Power cord
  - ▶ Seal frame
  - ▶ Plate sealer
  - ▶ PCR plate adapter block for 96- or 384-well microplates
  - ▶ Support block for storage plates
  - ▶ Instruction manual
3. Remove the protective plastic bag and any protective film.
4. Plug the power cord into the back of the instrument, and plug the other end into a properly rated outlet. Confirm the voltage rating listed on the instrument is properly labeled to 110V or 230V as required.
5. Always use PPE, gloves, eye-wear, etc. accordingly to your experiment protocols' requirements.
6. Switch the main power to ON.
7. The front control panel display will illuminate.

## 2.2 Display Overview



1. **SEAL TEMP:** Indicates sealing platen temperature.
2. **SEAL TIME:** Displays sealing time.
3. **STATUS:** Shows Heating, Cooling, Ready or Error states.

## 2.3 Unit Overview



### 3.0 Operation

After installing the unit, you will need to power it up using the power switch in the back, then choose your sealing settings.

**NOTE:** The Axygen® PlateMax™ plate sealer should be used only with microplates and seals that are designed for heat sealing. It is the user's responsibility to confirm that the consumables being used are appropriate for the application.

Proper heat sealing of microplates requires the proper temperature and time settings. Contact your consumable manufacturer for recommended time and temperature parameters.

It is commonly required to try different temperature and sealing time settings to optimize the sealing of different types of plates. Many polypropylene plates and sealing films seal well using a sealing temperature of 165°C and sealing time of 4.5 seconds.

#### 3.1 Set the Temperature

- ▶ Press the Mode button until the Seal Temp text is flashing. Use the control knob to adjust the display to the desired temperature.
- ▶ Press the control knob or wait 10 seconds to set the selected temperature.

When a temperature is set above the current temperature of the heating platen, the display will show Heating and the Status indicator LED above the door will flash red.

When the temperature of the heating platen reaches the set temperature, the display will show Ready, and the indicator LED will be a steady green.

**NOTE:** It is recommended to leave the drawer closed, and without a sample plate on the drawer while the platen is heating up. This will allow the unit to heat to the set temperature more quickly.

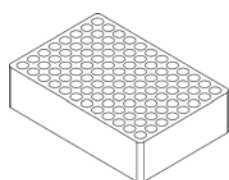
#### 3.2 Set the Time

- ▶ Pressing the Mode button until the Seal Time text is flashing. Use the control knob to adjust the display to the desired sealing time.
- ▶ Press the control knob or wait 10 seconds to set the selected time.

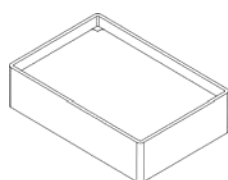
#### 3.3 Using Plate Adapters

Corning ships adapters for optimal sealing of certain multiwell plate configurations.

- ▶ **Axygen PlateMax adapter for sealing assay and PCR microplates**  
One side (96 holes) accommodates 96-well microplates and the other side accommodates 384-well PCR microplates.

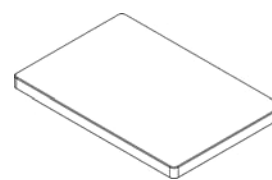


96-well microplate side



384-well microplate side

- ▶ **Axygen PlateMax support block for assay and storage plates**  
A thin block that is designed to support the center portion of assay and storage plates.

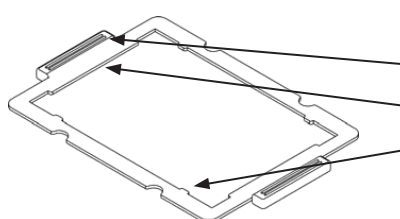


Support block

#### 3.4 Using the Seal Frame

A sealing frame is provided with the unit to assist in securing the thermal seal in proper position prior to sealing the plate. This ensures proper positioning of the seal and prevents any curling or undesired movement of the thermal seal prior to the sealing process.

After loading the plate and placing the seal on top of the plate, the frame is then lowered over the thermal seal and onto the plate. Tabs at either end of the frame secure the thermal seal in place. There are 4 metal posts around the plate which serve as indexing points for the frame.



- 1. Rubber handles:** Provides insulated handling points for the frame.
- 2. Tabs:** Secures the thermal seal in place.
- 3. Indexing points:** Fits around metal posts on the plate drawer.

### 3.5 Sealing a Plate

Based on the type of seal and plate being used, select the time and temperature using the Mode button and control knob. Consult the seal manufacturer for recommended settings. If the plate you are using will require an adapter, place it into the recessed area in the middle of the drawer. This will prevent the adapter from shifting position during sealing.

Next, position your plate on top of the adapter or directly in the drawer. Confirm that the plate is centered and flat. Then, lay the thermal seal on top of the plate, being sure that it is centered.

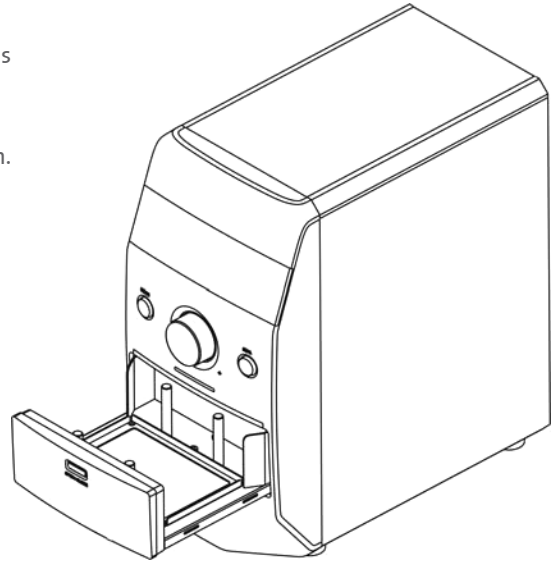
**NOTE:** Make sure the seal is placed with the sealing side down on the plate. If the seal is placed upside down, it will stick to the hot platen, and this will require cleaning of the platen (see Accessing and Cleaning the Heating Platen).

Once the thermal seal is placed, place the seal frame on top to prevent the seal from shifting position. Depending on the settings chosen, the unit may require some time before the heating platen has reached the desired temperature. After the settings are entered and the status light is green, the unit is ready for sealing.

Keep hands and fingers clear of the drawer, and press the Seal button. The drawer will close automatically, the plate will be sealed, and the drawer will open for removal of the seal frame and plate.

#### Sealing a Plate

1. Set the Sealing temperature and time.
2. Insert the Adapter (if required).
3. Place the plate in the drawer.
4. Place the seal on top of the plate.
5. Place the sealing frame on top of the seal.
6. Press Seal when the light is green – drawer will close, seal the plate, and drawer will open automatically.
7. Remove the sealing frame.
8. Remove the sealed plate.



### 3.6 Accessing and Cleaning the Heating Platen

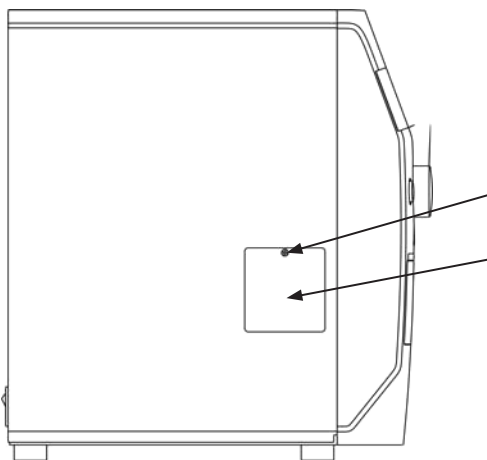
In the event that a seal becomes stuck to the heating platen, the following steps will allow you to clean the platen.



**CAUTION:** Be sure to turn the unit Off, and unplug it from the power source before attempting to clean the platen.



**CAUTION:** The heating platen can reach temperatures in excess of 190°C. Allow the unit to cool for at least 1 hour before attempting to clean the platen.



#### Cleaning the Heating Platen

1. Open the drawer of the unit.
2. Power the unit down and unplug it.
3. Allow to cool for at least 1 hour.
4. Using a Phillips head screwdriver, remove the retaining screw for the access door.
5. Remove the access door.
6. Clean the platen by hand using a plastic putty knife. Alcohol may be used to remove any residue. **NOTE:** Do not use a metal tool (i.e., screwdriver) to scrape the platen as this could gouge the surface.
7. Replace the access door and screw.

### 3.7 Power Save Mode

If the unit is left On but inactive for long periods, it will enter a power saving mode. These modes are described below.

Display	Time Frame	Temperature
STND_BY	1 hour of inactivity	60°C
PWRSAVE	3 hours of inactivity after entering STND_BY mode	Ambient (heater Off)

## 4.0 Troubleshooting

Error	Possible Cause	Solution
Plates not sealing correctly.	Insufficient sealing time.	Check with the sealing film manufacturer for recommended sealing time and temperature.
	Sealing temperature is too low.	
	Top of the plate is not flat.	Turn the plate 180°, and reseal.
Sealing film is curling and moving out of position.	Temperature difference and electrostatic charge affecting the seal.	Use the sealing frame to secure the seal in place.
Sealing film is sticking to platen.	Foreign material stuck to the platen.	Follow the procedure for cleaning the heating platen.

### 4.1 Error Codes

Code	Possible Cause	Solution
Error 1	Tray motor or switch failure.	Reboot the unit.
Error 2		
Error 3	Heater motor or switch failure.	
Error 4		
Error 5	Heater is not working or temperature sensor (PT-1000) failure.	
Error 6	Heater PCBA failure.	
Error 8	Heater is not working or temperature sensor (PT-1000) failure.	
Error 9	Safety door/housing switch was activated during drawer operation.	Turn Off the unit. Remove the foreign object, and reboot the unit.
	Foreign object is stuck between the tray door and the tray plate.	



## 5.0 Limited Warranty

Corning Incorporated (Corning) warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. CORNING DISCLAIMS ALL OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. Corning's sole obligation shall be to repair or replace, at its option, any product or part thereof that proves defective in material or workmanship within the warranty period, provided the purchaser notifies Corning of any such defect. Corning is not liable for any incidental or consequential damages, commercial loss or any other damages from the use of this product.

This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover motor brushes, fuses, light bulbs, batteries or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier.

In the event this product fails within the specified period of time because of a defect in material or workmanship, contact Corning Customer Service at: USA/Canada 1.800.492.1110, outside the U.S. +1.978.442.2200, visit [www.corning.com/lifesciences](http://www.corning.com/lifesciences), or contact your local support office.

Corning's Customer Service team will help arrange local service where available or coordinate a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Corning will not be responsible for damage incurred by improper packaging. Corning may elect for onsite service for larger equipment.

Some states do not allow limitation on the length of implied warranties or the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights. You may have other rights which vary from state to state.

No individual may accept for, or on behalf of Corning, any other obligation of liability, or extend the period of this warranty.

For your reference, make a note of the serial and model number, date of purchase, and supplier here.

Serial No. \_\_\_\_\_ Date Purchased \_\_\_\_\_  
Model No. \_\_\_\_\_ Supplier \_\_\_\_\_

## 6.0 Equipment Disposal



According to Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), this product is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.

Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at [www.corning.com/weee](http://www.corning.com/weee).

**Warranty/Disclaimer:** Unless otherwise specified, all products are for research use or general laboratory use only.\* Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. These products are not intended to mitigate the presence of microorganisms on surfaces or in the environment, where such organisms can be deleterious to humans or the environment. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications. \*For a listing of US medical devices, regulatory classifications or specific information on claims, visit [www.corning.com/resources](http://www.corning.com/resources).

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