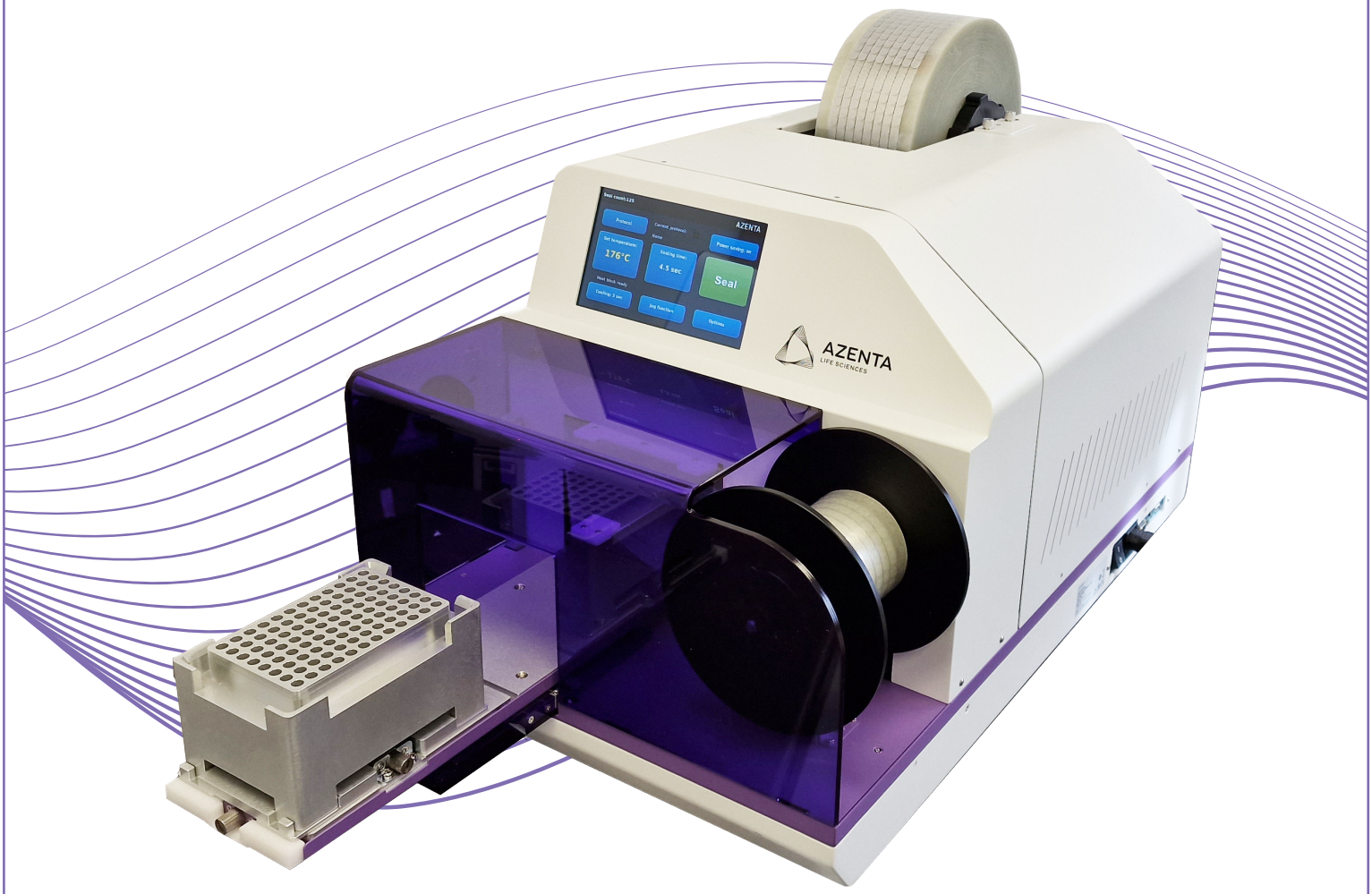
Automated Individual Access Roll Heat Sealer User Manual



AZENTA
LIFE SCIENCES

350633 Revision E

Azenta, Inc.

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Original manual printed in English.

These are the original instructions for the Automated Individual Access Roll Heat Sealer.

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Revision History

Part Number: 350633

Automated Individual Access Roll Heat Sealer User Manual

Revision	Date
Revision A	02 MAR 2021
Revision B	18 AUG 2021
Revision C	18 APR 2023
Revision D	30 MAY 2023
Revision E	16 JUN 2023

Table of Contents

1. Safety

DANGER

Read the Safety Chapter and Manual

Failure to review the *Safety* chapter and the manual, and follow the safety warnings can result in death or serious injury.

- All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.
- Follow all applicable safety codes of the facility as well as national and international safety codes.
- Know the facility safety procedures, safety equipment, and contact information.
- Read and understand each procedure before performing it.
- Read, follow, and understand each chapter in order to preserve product safety.

CAUTION

Electrical Installation

Improper electrical connection or connection to an improper electrical supply can result in electrical burns or fire and damage to the equipment.

- Always use proper power and proper electrical connections in accordance with the appropriate electrical code.
- Always connect the unit to a proper electrical ground.
- Turn off power before servicing.
- Turn off power before disconnecting or connecting cables.

CAUTION

Hot Surface Hazard

The plate and other internal components may be too hot to touch.

CAUTION

Pinch Point

Moving parts of the product may cause squeezing or compression of fingers or hands resulting in personal injury.

- Do not operate the product without the protective covers in place.

CAUTION

Two-Person Lift Recommended

This product weighs 52 kg (about 115 lbs). Improper lifting may result in personal injury.

- Do not attempt to lift this product alone. Always use 2-person lift techniques or a lift aid.

NOTICE

It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.

NOTICE

There is the possibility of WiFi fallout when operating the Automated Individual Access Roll Heat Sealer.

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 and keep this instruction manual for future reference.

Warnings

Personal Injury

- Do not use this product in a manner other than as stated in the "General Operation Safety" 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.
- This unit is not explosion or spark proof.
- Do not operate this product near volatile or flammable materials.

General Operation Safety

- When using infectious, radioactive, toxic and other solutions which may pose health risks, observe the appropriate safety precautions.
- Do not use this machine in a potentially explosive environment or with potentially explosive chemicals. Install the machine in a location free of excessive dust.
- Avoid placing the machine in direct sunlight.
- Choose a flat, stable surface capable of withstanding the weight of the machine. Install the machine in the room temperature 15 – 30˚C, relative humidity 0 – 85%. Do not block the air vents.
- Make sure the power source conforms to the required power supply specifications.
- To avoid electric shock, make sure the machine is plugged into a grounded electric outlet. Do not allow water or any foreign objects to enter the various openings of the machine.
- Switch off the power switch before cleaning or performing any service on the machine, such as replacing the fuses.
- To guarantee sufficient ventilation, ensure that the sealer has at least 30 cm of free space on all sides, including the rear.
- Repair should be carried out by authorized service personnel only. Use original spare parts and accessories only.

Regulatory Compliance and Declaration of Conformity

The Automated Individual Access Roll Heat Sealer meets the requirements of the European Union's Machinery Directive 2006/42/EC, Electromagnetic Compatibility Directive 2014/30/EU, and 2011/65/EU Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment. In accordance with the directives, Azenta Life Sciences has issued a Declaration of Conformity and the Automated Individual Access Roll Heat Sealer has a CE mark affixed.

DOCUMENT NUMBER:	TITLE:	
356246	**Declaration of Conformity, Machinery Directive**	AZENTA LIFE SCIENCES
REVISION: B	DOCUMENT CLASSIFICATION:	
ECO# EC132455	04-Form, Template or Other	

DECLARATION OF CONFORMITY

Description: IntelliXseal - Automatic Random-Access Roll Heat Sealer

Function: Automatic Roll Heat Sealer for heat sealing of individual tubes or custom shaped consumables. Can be used as a stand-alone system, or fully integrated with automated application

Product code: 59-1[illegible]00

Business name and full address of the manufacturer of the machine:
Azenta Life Sciences, Northbank, Irlam, Manchester M44 5AY, United Kingdom

Name and address of the person, established in the Community, authorized to compile the relevant technical documentation:
Azenta Life Sciences (Germany) GmbH, Im Leuschnerpark 1B, 64347 Griesheim, Germany

The manufacturer declares:

- That this machinery fulfills all the relevant provisions of Directive 2006/42/EC (Machinery Directive)
  - EN 12100:2010 Safety of machinery. General principles for design. Risk assessment and risk reduction
  - ISO/TR 14121-2:2012 ED2 Safety of machinery. Risk assessment. Practical guidance and examples of methods
  - EN 61010-1:2010+A1:2019. Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
  - EN 61010-2-010:2020 Safety requirements for electrical equipment for measurement, control and laboratory use. Particular requirements for laboratory equipment for the heating of materials
- That this machinery fulfils all the relevant provisions of Directive 2014/30/EU (EMC Directive)
  - EN 61326-1:2021 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
- That this machinery is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and amendment 2015/863/EU.
  - BS EN IEC 63000:2018. Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Year CE Marking Affixed to Product: 2020

Signed for and on the behalf of Azenta Life Sciences:

Rob Woodward

Rob Woodward (Oct 25, 2021 05:58 GMT+1)

Print name: Rob Woodward
Position: Senior Vice President, Global Quality Executive Management
Place: Irlam, Manchester

Date Printed: Saturday, October 23, 2021	**This is uncontrolled when printed**	PAGE 1 OF 1

2. Introduction

The Automated Individual Access Roll Heat Sealer is capable of sealing individual wells or tubes, enabling researchers to leverage the benefits of the 4titude Random Access range. The Random Access range utilizes a plate with individually removable wells/columns, together with seals consisting of individual foil seal spots. This enables sealing of individually accessible tubes, and thereby provides flexibility for single access or placement of tubes within a rack. In addition, the Automated Individual Access Roll Heat Sealer also has the ability to seal custom shaped consumables with custom shaped seals to accommodate tailor-made needs.

The Automated Individual Access Roll Heat Sealer is a bench-top instrument that is suitable for both research and clinical laboratories, and does not require any air supply. It can be fully automated within integrated work-flows, and is compatible with a wide range of plates and seals.

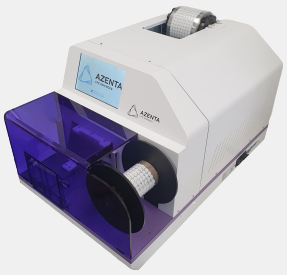
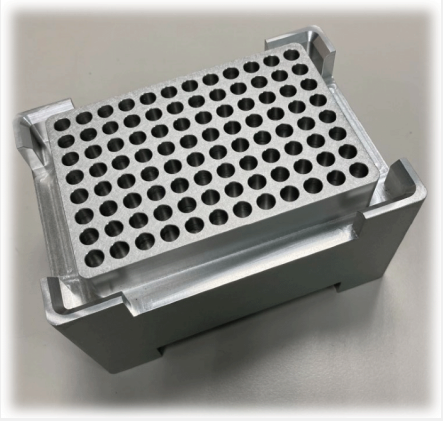
When using the Automated Individual Access Roll Heat Sealer for the first time, please read this entire user manual carefully before operating the instrument.

Unpacking (Packing and Contents Listing)

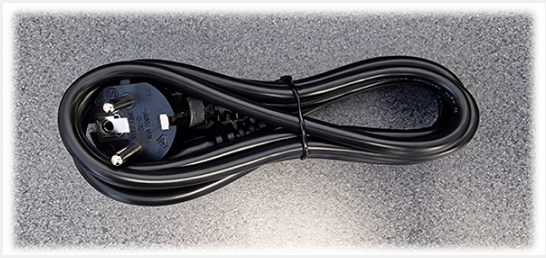
The device is delivered in an external carton and an internal carton with protective PE foam cushions. Remove the pieces of the Automated Individual Access Roll Heat Sealer from each carton. All packaging should be retained until it is established that the device is working properly.

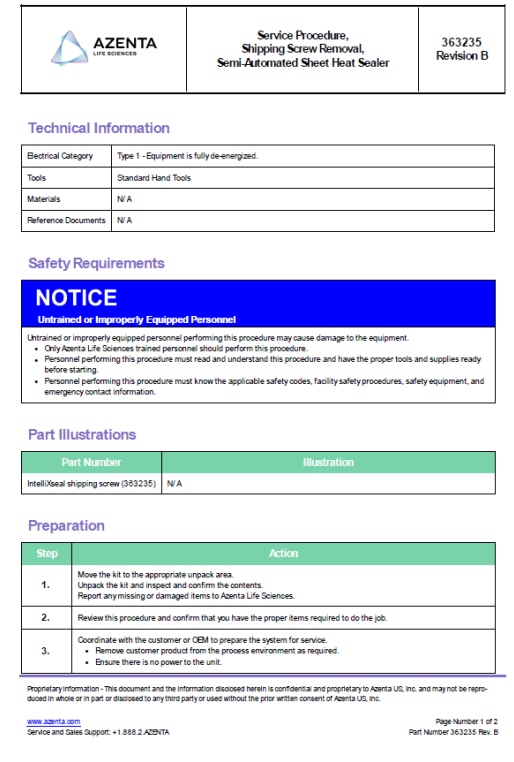
Open the Automated Individual Access Roll Heat Sealer package and confirm that all the items in Table 2-1 are included.

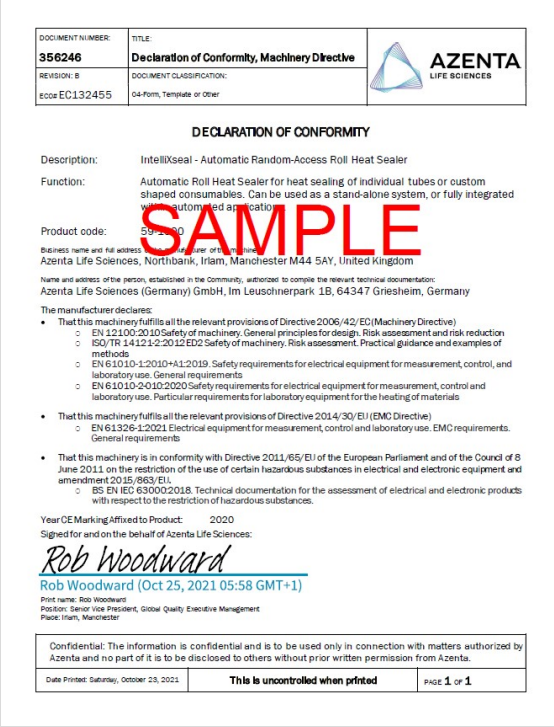
Table 2-1: Contents of Automated Individual Access Roll Heat Sealer Package

Product Title	Product Image
Automated Individual Access Roll Heat Sealer device	
Roll holder	
96-well microplate support adapter	

Product Title	Product Image
Leading seal	
Seal loading tool	
Core for waste collection	
Spare fuel (8A) ***NOTE:*** *The 8 amp fuse can be used for 240 V or 110 V*	

Product Title	Product Image
Power cord UK	
Power cord EU	
Power cord US	
Power cord AU	

Product Title	Product Image
User manual	
Shipping screw notice	

Product Title	Product Image
Declaration of Conformity	

DOCUMENT NUMBER: 356246 | TITLE: Declaration of Conformity, Machinery Directive | REVISION: B | ECO#: EC132455 | DOCUMENT CLASSIFICATION: 04-Form, Template or Other

AZENTA LIFE SCIENCES

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Description: IntelliXseal - Automatic Random-Access Roll Heat Sealer

Function: Automatic Roll Heat Sealer for heat sealing of individual tubes or custom shaped consumables. Can be used as a stand-alone system, or fully integrated with automated application

Product code: 59[illegible]90

SAMPLE

Business name and full address of the manufacturer of the machinery:
Azenta Life Sciences, Northbank, Irlam, Manchester M44 5AY, United Kingdom

Name and address of the person, established in the Community, authorized to compile the relevant technical documentation:
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  - BS EN IEC 63000:2018. Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Year CE Marking Affixed to Product: 2020

Signed for and on the behalf of Azenta Life Sciences:

Rob Woodward

Rob Woodward (Oct 25, 2021 05:58 GMT+1)

Print name: Rob Woodward
Position: Senior Vice President, Global Quality Executive Management
Place: Irlam, Manchester

Confidential: The information is confidential and is to be used only in connection with matters authorized by Azenta and no part of it is to be disclosed to others without prior written permission from Azenta.

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> ***NOTE:*** If there are any items missing, damaged, or not according to your order, contact your distributor or sales representative immediately. Refer to "Appendix C: Ordering Information and Accessories" on page 89 to view the ordering information for the Automated Individual Access Roll Heat Sealer.

CAUTION

Shipping Bracket

To prevent the plate carrier from moving during transportation, the Automated Individual Access Roll Heat Sealer is shipped with a red shipping bracket, inserted into the rear of the instrument. Before the unit is switched on, make sure that the screw is removed from the instrument and retained with the other transportation packaging.

CAUTION

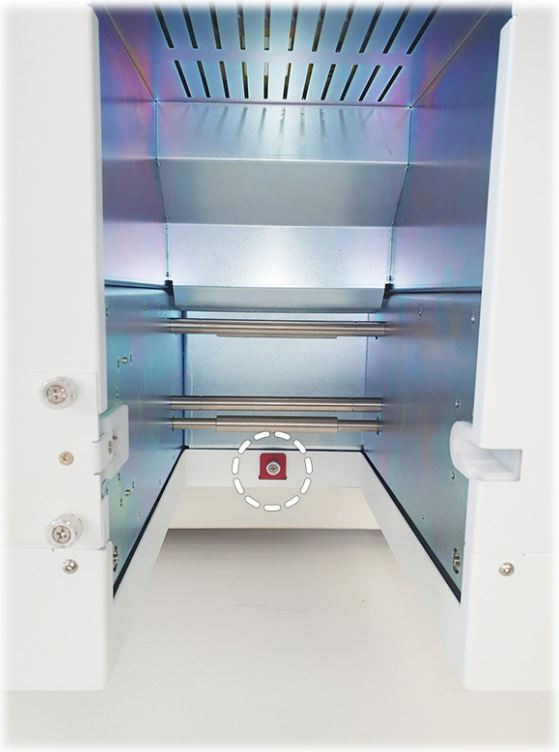
Two-Person Lift Recommended

This product weighs 52 kg (approximately 115 lbs). Improper lifting may result in personal injury.

- Do not attempt to lift this product alone. Always use 2-person lift techniques or a lift aid.

Remove the Shipping Bracket

NOTE: Ensure the shipping bracket is retained in a safe place. It is essential that the shipping bracket is replaced if the unit needs to be shipped in the future.

Step	Action
1.	Locate the protective bracket on the rear of the Automated Individual Access Roll Heat Sealer.
2.	Carefully loosen the screw and remove the bracket. ***NOTE:*** *Be sure to retain the shipping bracket with the other transportation packaging.* 
3.	Ensure that the shipping bracket, and any other material that was removed, are retained in a safe place.

Step	Action
4.	Apply power to the system.

Hardware Overview

Front Features

The following figure shows the front of the Automated Individual Access Roll Heat Sealer.

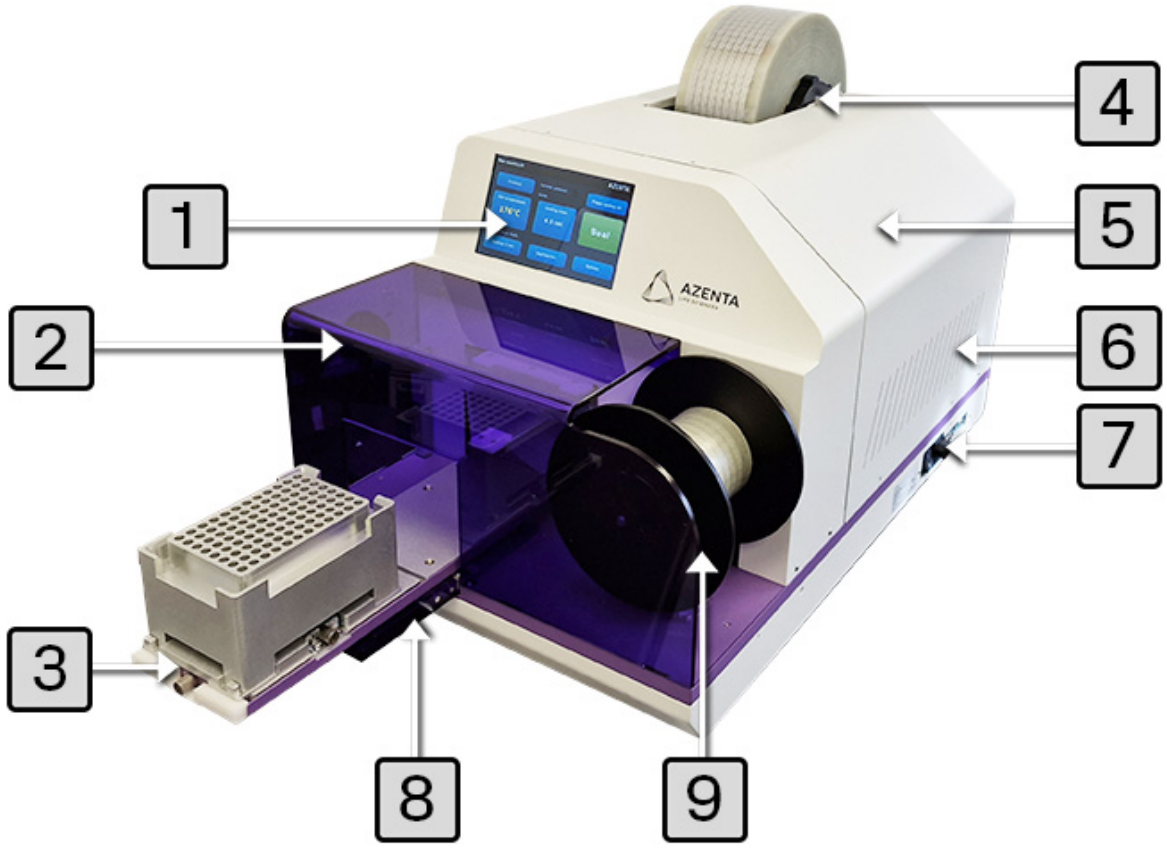
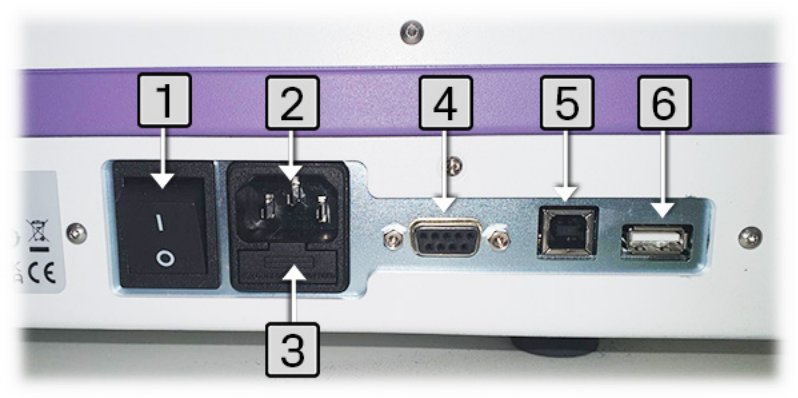


Figure 2-1: Automated Individual Access Roll Heat Sealer Front Features

The table below describes the features shown in the figure above.

Table 2-2: Description of the Automated Individual Access Roll Heat Sealer Front Features

Number	Title of Part	Description of Part
1	Touch screen	The interface that enables the user to specify the sealing parameter and the start/stop seal cycle.
2	Front cover	The removable panel that provides protection for the user.
3	Adapter carrier	The metal platform on which the microplate adapters are loaded.

<table>
<tr><th>Number</th><th>Title of Part</th><th>Description of Part</th></tr>
<tr><td>4</td><td>Seal roll fixing bracket</td><td>The bracket that fixes the seal roll shaft to the device.</td></tr>
<tr><td>5</td><td>Maintenance case</td><td>The removable panel that provides quick accessibility to the key modules.</td></tr>
<tr><td>6</td><td>Ventilation area</td><td>The structure for heat ventilation.
NOTE: Do not block.</td></tr>
<tr><td>7</td><td>Connection panel</td><td>This area includes the power switch, power connector, USB ports, and RS232 port, as well as the housing for the fuse and spare fuse.
 

<table>
<tr><th>#</th><th>Description</th></tr>
<tr><td>1</td><td>Power switch</td></tr>
<tr><td>2</td><td>Power connector</td></tr>
<tr><td>3</td><td>Housing for fuse and spare fuse</td></tr>
<tr><td>4</td><td>RS232 port for remote communication</td></tr>
<tr><td>5</td><td>USB port type B for remote communication</td></tr>
<tr><td>6</td><td>USB port type A for updating the software</td></tr>
</table></td></tr>
<tr><td>8</td><td>Door (opened)</td><td>The movable structure that opens when the adapter carrier is extended and closes when the adapter carrier retracts.</td></tr>
<tr><td>9</td><td>Waste seal roll holder</td><td>This holder is used as a waste roll core to collect the waste seal.</td></tr>
</table>

Rear Features

The following image shows the rear side of the Automated Individual Access Roll Heat Sealer. The table below describes the features shown in the image.

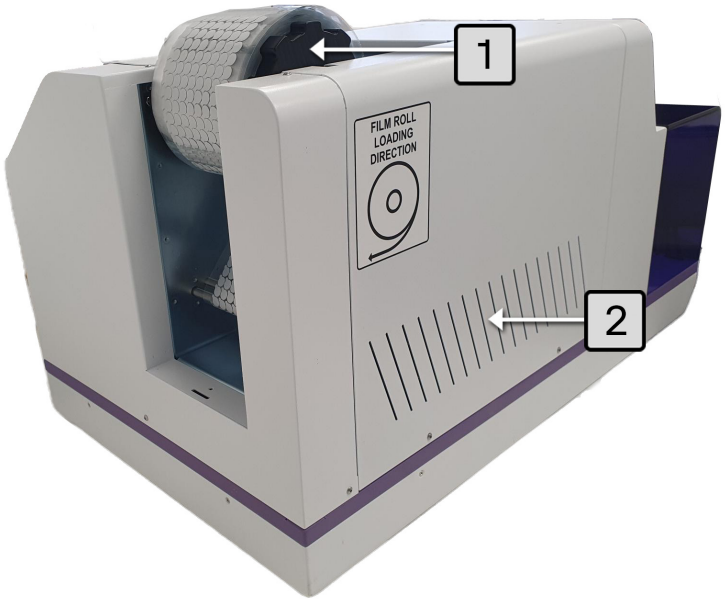


Figure 2-2: Automated Individual Access Roll Heat Sealer Rear Features

Table 2-3: Description of the Automated Individual Access Roll Heat Sealer Rear Features

Number	Title of Part	Description of Part
1	Seal roll support	The holder to support the seal roll.
2	Ventilation area	The structure for heat ventilation. ***NOTE:*** *Do not block.*

Touch Screen Overview

The following section provides an introductory overview of the icons on the touch screen of the Automated Individual Access Roll Heat Sealer.

Eight functional icons, as well as the status display areas, are present on the touch screen of the Automated Individual Access Roll Heat Sealer. The table below describes the features shown in the following figure.

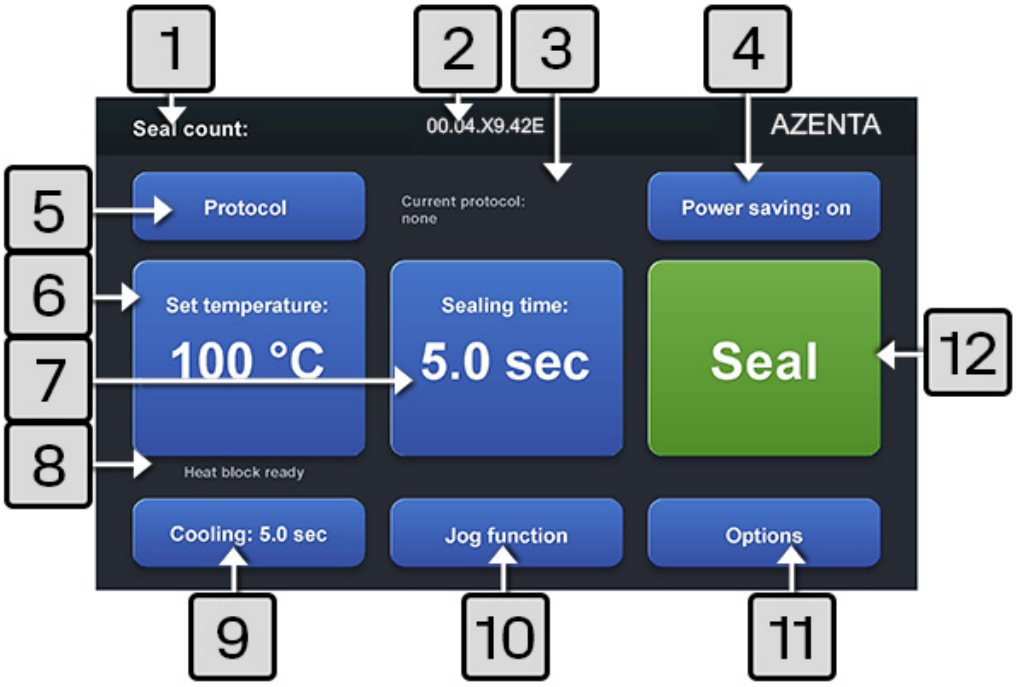


Figure 2-3: Automated Individual Access Roll Heat Sealer Screen Features

Table 2-4: Descriptions of the Automated Individual Access Roll Heat Sealer Screen Features

Number	Feature	Description
1	Seal count	Displays the total number of seal cycles this instrument has completed.
2	Software version	Displays the software version currently loaded onto the instrument (disappears after three seconds).
3	Current protocol display	Displays the name of the current sealing protocol.
4	Power saving function	Helps the user plan the experiment by reducing power consumption.
5	Protocol man-agement	Displays the protocol management function.

Number	Feature	Description
6	Seal temperature setting	Adjusts the temperature range 100~195°C, in 1°C increments.
7	Seal time setting	Adjusts the sealing time, between 1 and 10 seconds, in 0.1 second increments.
8	Heat block status display	Indicates the status (ready/heating/cooling) of the heat block.
9	Cooling time setting	Adjusts the cooling time between 1 and 10 seconds, in 1 second increments.
10	Jog function	The seal roll is pulled continuously by the waste seal roll motor by keeping taping on this icon.
11	Options	Controls the door movement by extending or retrieving the adapter carrier.
12	Seal function	Initiates sealing. When the temperature of the heat block reaches the set temperature, the color of this icon is green and the sealing process can be initiated. When the color of this icon is gray, it means the unit is in the heating or cooling stage and the sealing process cannot be started.

3. Operation

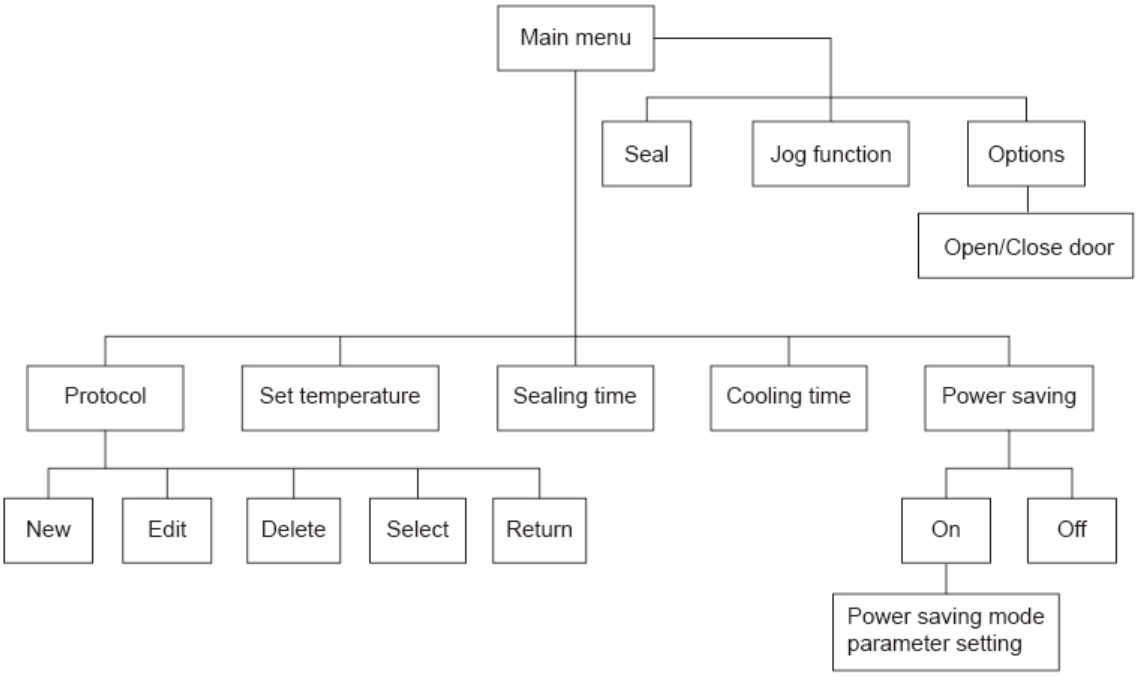
Basic Steps for Operation

> ***NOTE:*** Remember to remove the shipping bracket. See "Unpacking (Packing and Contents Listing) " on page 12.

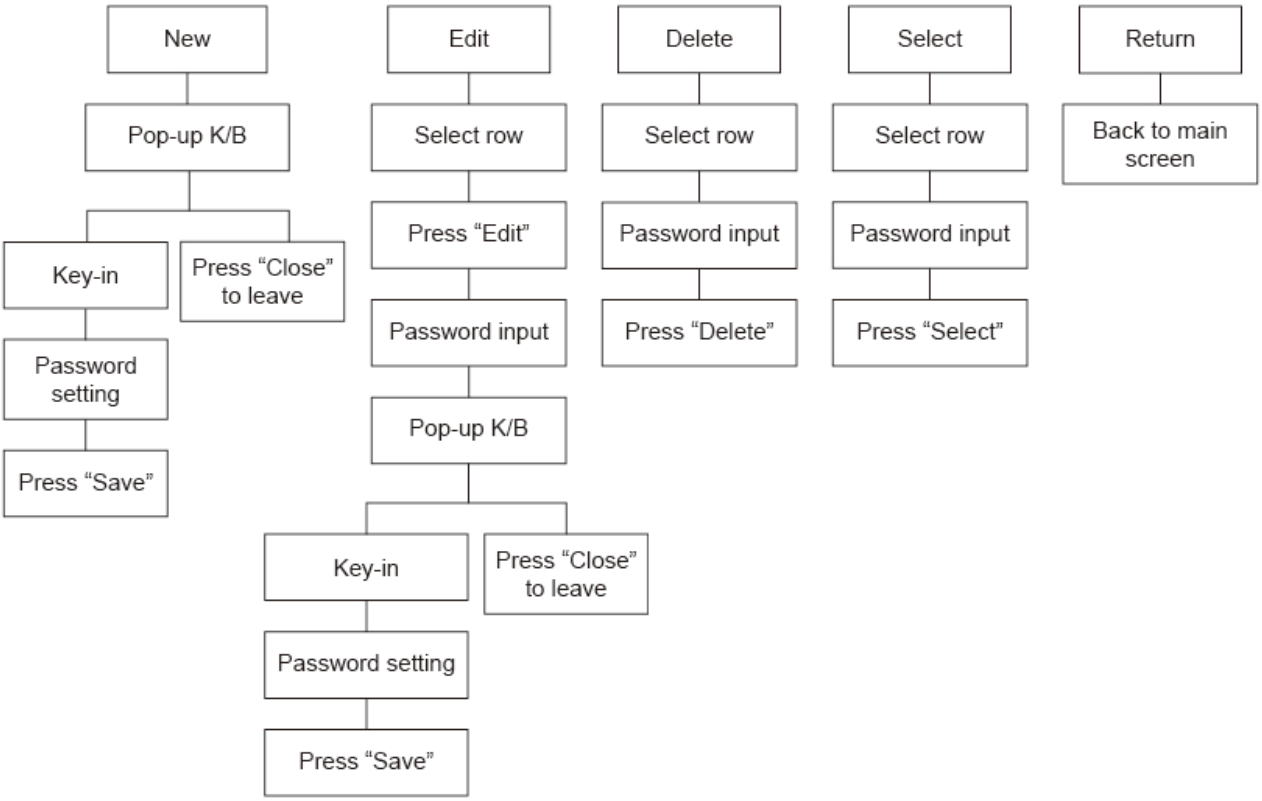
The basic steps for the Automated Individual Access Roll Heat Sealer operation as a standalone device are presented below.

Step	Action
1.	Connect the power cord.
2.	Turn on the device.
3.	Open the door.
4.	Load the microplate support adapter and a plate.
5.	Press the **Seal** icon.

Workflow of Main Screen



Workflow of Protocol Management



Seal Roll Loading Procedure

This section explains how to load a seal roll on the Automated Individual Access Roll Heat Sealer. Before starting, ensure you have the roll holder components, waste roll core, and the seal loading tool, as shown below.

Figure 3-1: Roll holder, waste roll core, seal loading tool

Installing Seal Roll on Roll Holder

NOTE: One seal roll shaft and one seal roll holder (removable side) are required for the roll holder.

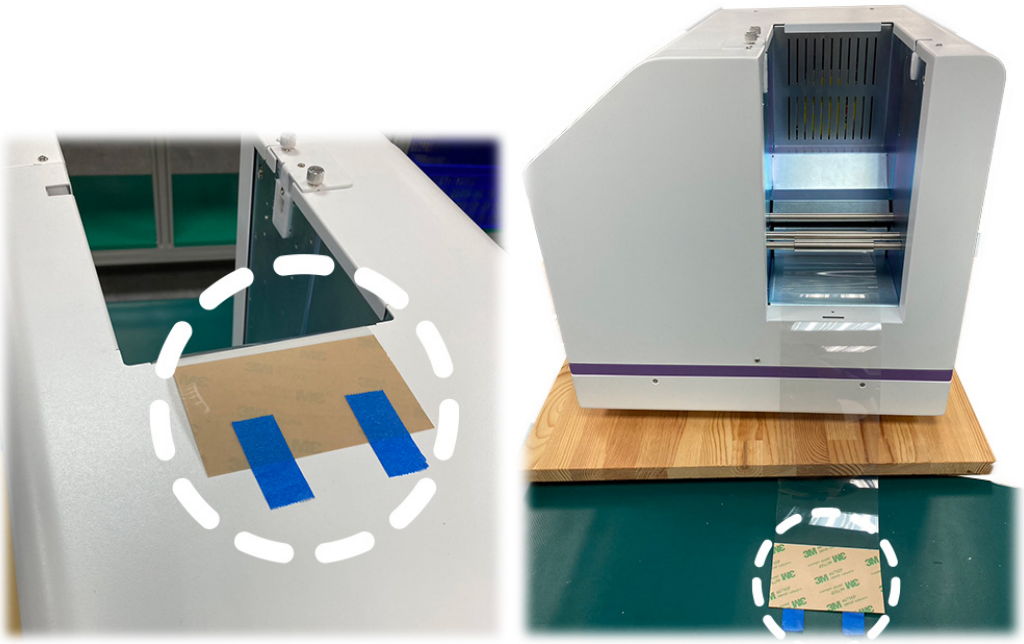
Step	Action
1.	Put the seal roll shaft into the center of the seal roll.
2.	Tighten the seal roll holder (removable side) onto the seal roll shaft to hold the seal roll. The following image shows the correct orientation of the seal roll (the orientation of the seal roll is indicated by the curved white arrows). ***NOTE:*** *Incorrect orientation of the seal roll can cause damage to the heat block.* 

Loading Procedure

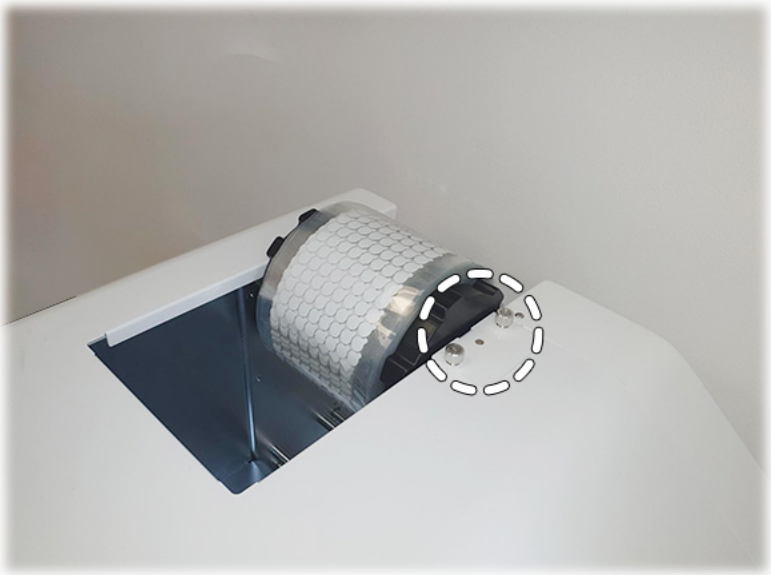
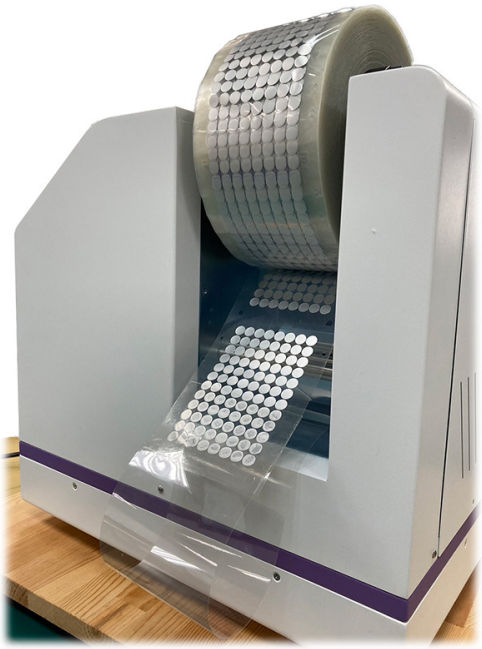
Use the Leading seal to Load the Seal

When you receive a new device, it will come with a leading seal.

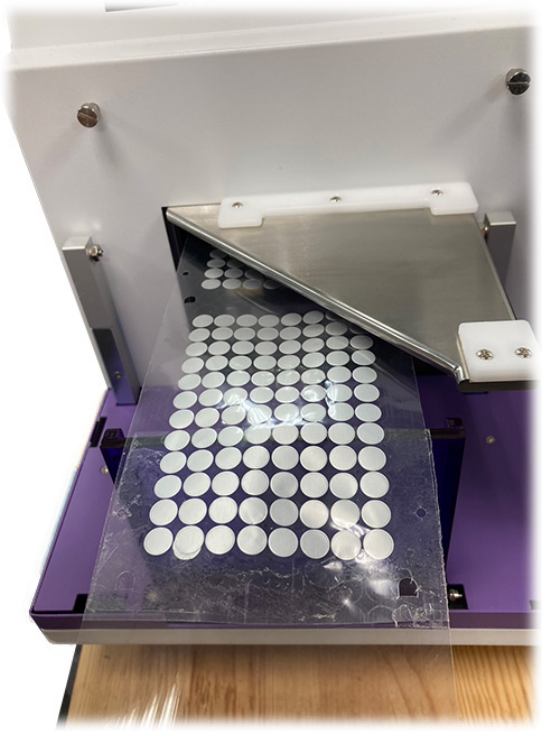
The *Join end* comes out from the back side and sticks to the top of the case, while the *Pull end* comes from the front side and sticks to the front cover.

Step	Action
1.	Peel off the *Join* end of the leading seal from the case and lay it down on the back of the device. 

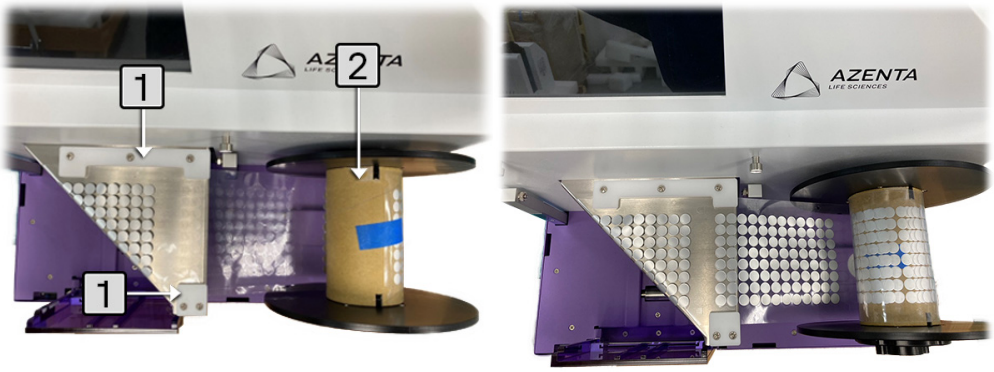
Step	Action
2.	To release the roll holder shaft fixing bracket on the seal roll support, remove the two screws. 
3.	Place the roll holder on the device by locating the ends of the shaft on the seal roll support. 

Step	Action
4.	Put the roll holder shaft fixing bracket back and screw it in. 
5.	Peel off the backing liner from the 3M tape on the *Join end* of the leading seal, and then stick the *Join end* to the end of the seal roll on the roll holder. The paste must be aligned and even, otherwise the seal may stick to the internal parts of the machine. ***NOTE:*** *The sticking area should be at least 10 cm.* 

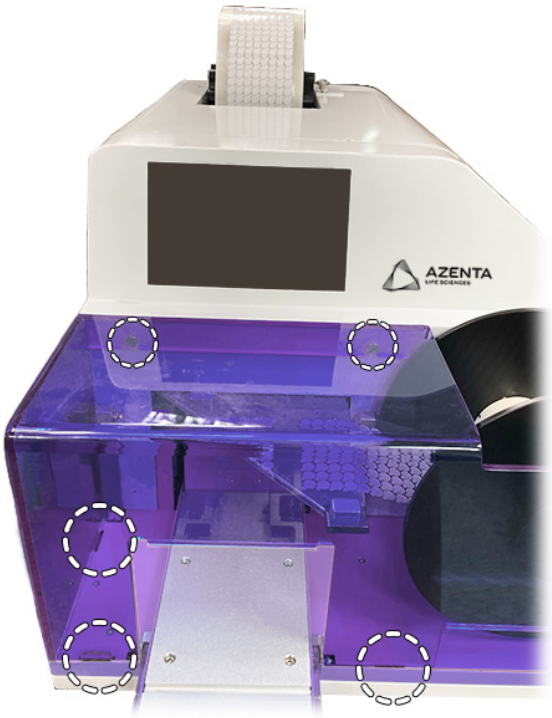
Step	Action
6.	Peel off the *Pull end* of the leading seal. 
7.	Carefully pull the *Pull end* through to the front of the device so it brings the end of the seal roll out. ***NOTE:*** *Ensure the seal comes out with the leading seal.*
8.	Remove the front cover by lifting it up. 

Step	Action
9.	Once the *Join end* of the leading seal is clear of the instrument, separate the seal from the leading seal. 

Step	Action
10.	Attach the seal roll to the waste seal roll core: a. Fold up the seal along the 45 degree bracket and align it with the lines between the two seal guiders. b. Pull the seal to the bottom of the waste roll core. c. Stick the end of the seal roll onto the waste seal roll core using a piece of tape d. Rotate the waste seal roll motor counter-clockwise until it has wrapped around the waste seal roll core three times.



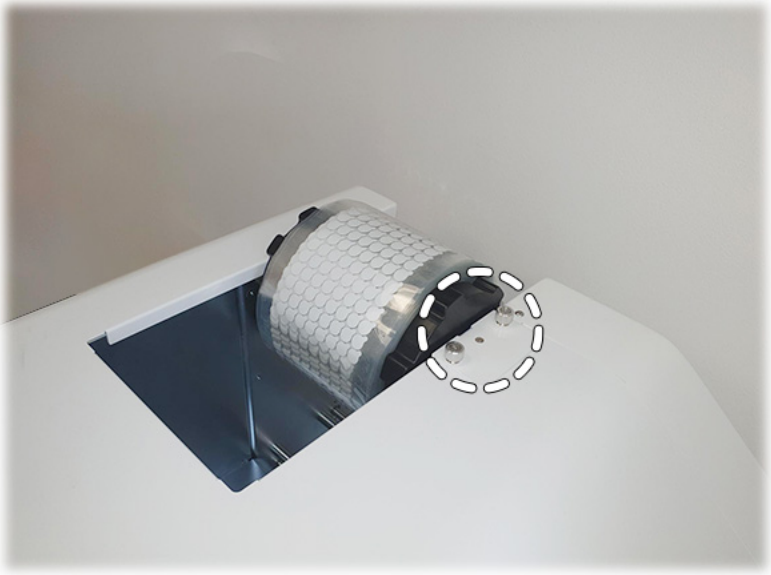
#	Part
1	Seal guiders
2	Waste seal roll core

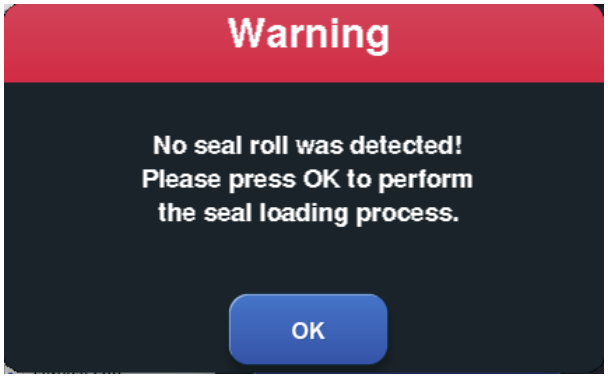
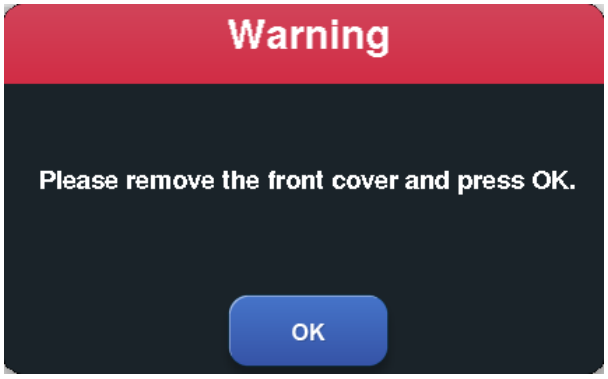
Step	Action
11.	Put the front cover back by putting it down, ensuring that the front cover is placed on the two positioning pins and three positioning holes. 
12.	Turn on the device and seal a plate. See "Sealing a Plate" on page 65.

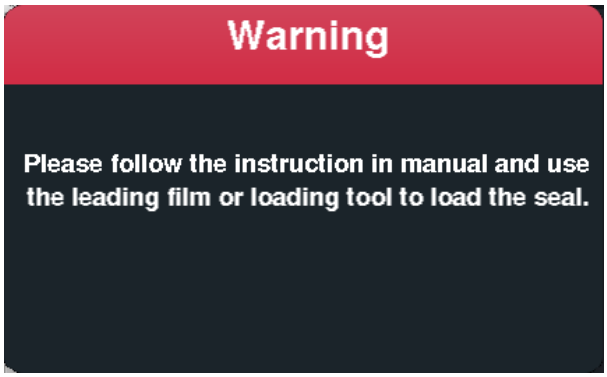
Use the Loading Tool to Load the Seal

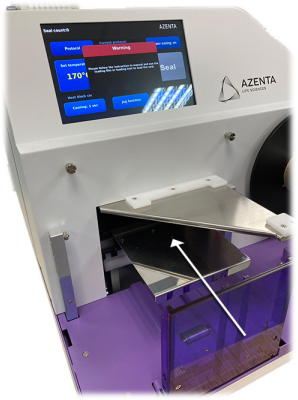
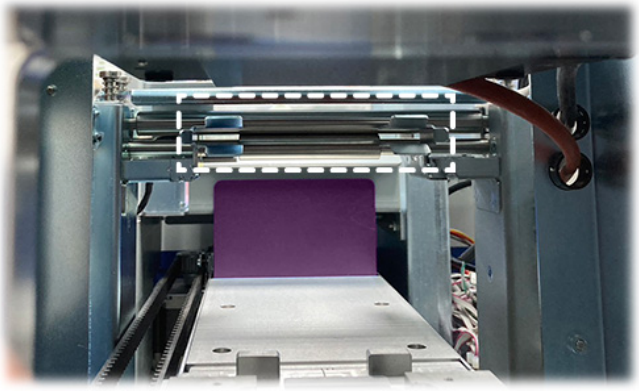
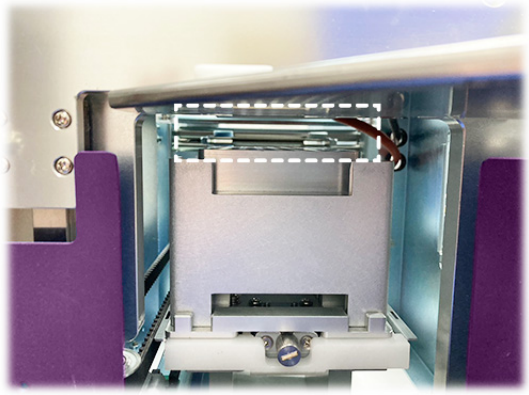
If the leading seal is missing, a loading tool is needed to load the seal.

Step	Action
1.	To release the roll holder shaft fixing bracket on the seal roll support, remove the two screws. 

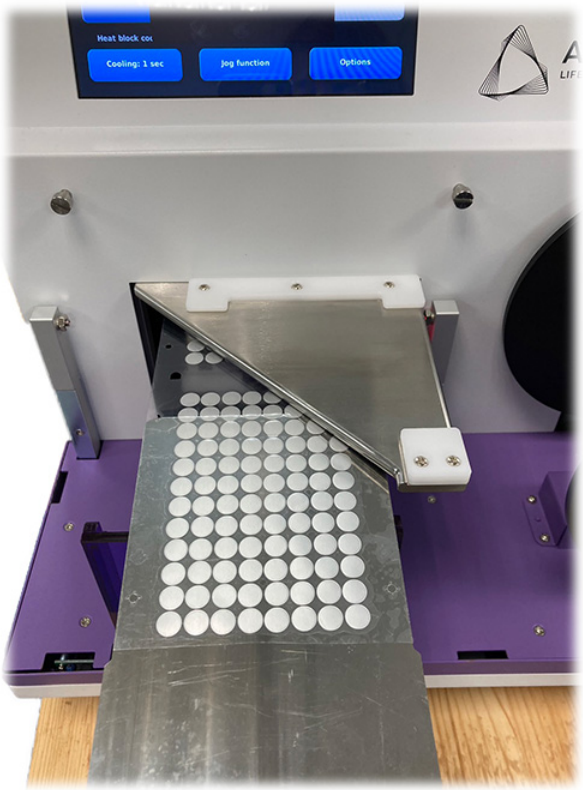
Step	Action
2.	Place the roll holder on the device by locating the ends of the shaft on the seal roll support. 
3.	Put the roll holder shaft fixing bracket back and screw it in. 

Step	Action
4.	Turn on the Automated Individual Access Roll Heat Sealer. On the touch screen, the warning message pictured below is displayed. 
5.	To perform the seal loading process, press **OK**. On the touch screen, the warning message pictured below is displayed. 

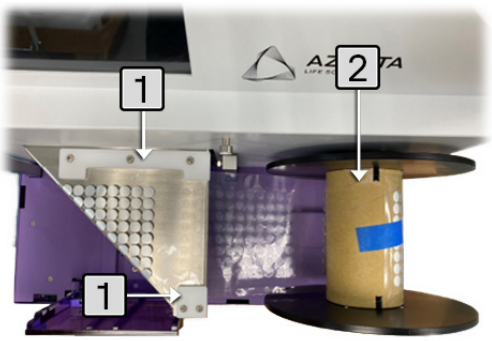
Step	Action
6.	Remove the front cover by lifting it up. 
7.	Press **OK** on the touchscreen. The warning message pictured below is displayed. 

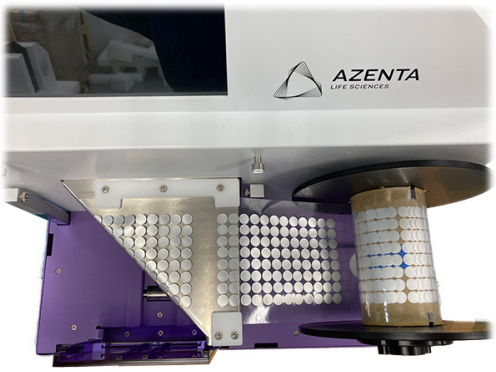
Step	Action
8.	Slide the loading tool into the unit through the seal support bracket until it appears at the rear of the device.   ***NOTE:*** *If there is a microplate support adapter, the loading tool can pass through the top surface of the adapter.* 

Step	Action
9.	Stick the end of the seal roll onto the end of the seal loading tool. ***NOTE:*** *The length of the seal stuck on to the seal loading tool should be at least 10 cm.* 

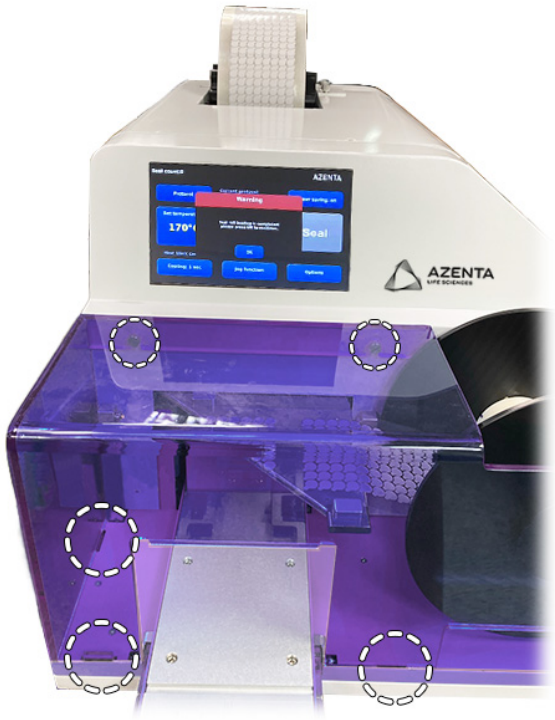
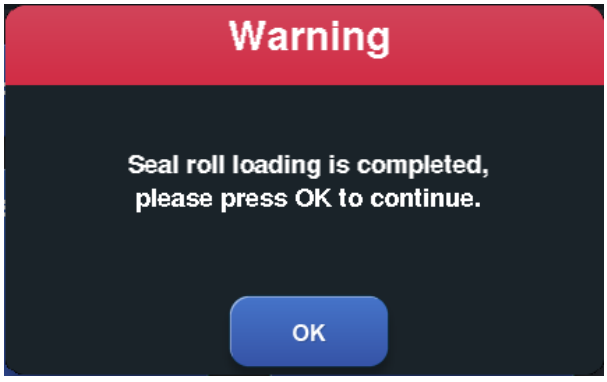
Step	Action
10.	Carefully withdraw the seal loading tool through the front of the device. ***NOTE:*** *Ensure the seal comes out with the tool.* 

Step	Action
11.	Attach the seal roll to the waste seal roll core: a. Fold up the seal along the 45 degree bracket and align it with the lines between the two seal guiders. b. Pull the seal to the bottom of the waste roll core. c. Stick the end of the seal roll onto the waste seal roll core using a piece of tape d. Rotate the waste seal roll motor counter-clockwise until it has wrapped around the waste seal roll core three times.





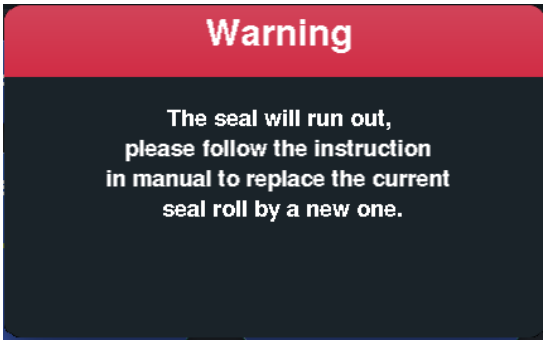
#	Part
1	Seal guiders
2	Waste seal roll core

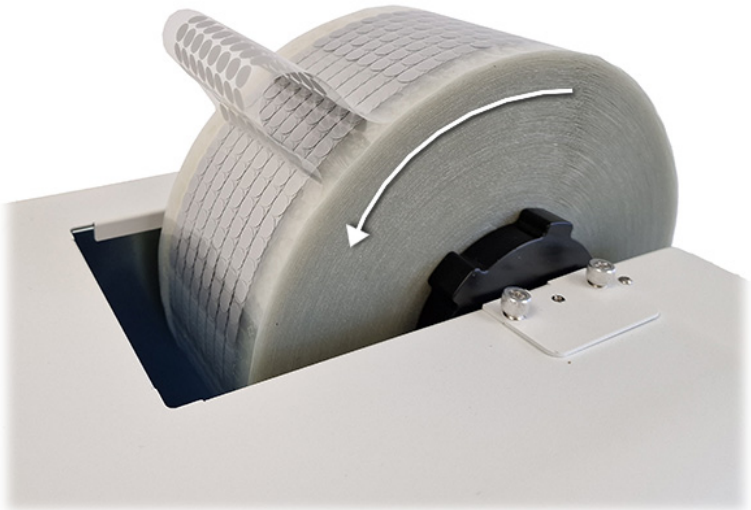
Step	Action
12.	Put the front cover back by putting it down, ensuring that the front cover is placed on the two positioning pins and three positioning holes. 
13.	Press **OK** on the touchscreen. 
14.	Seal a plate. See "Sealing a Plate" on page 65.

Seal Roll Changing Procedure

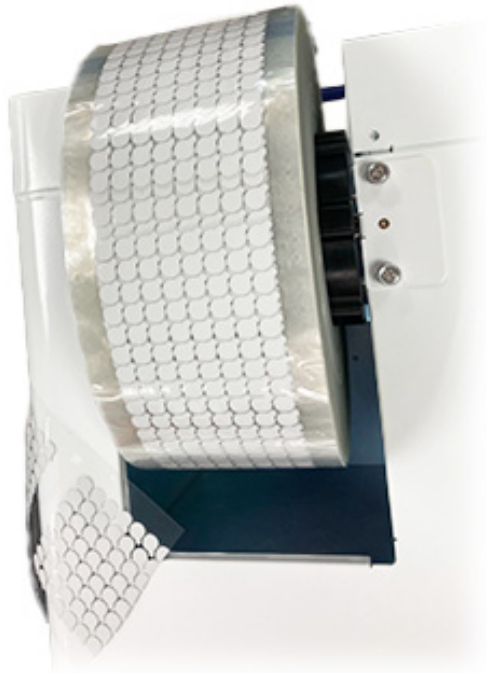
When you receive the seal roll run out warning, displayed below, or you want to use another kind of seal roll for the Automated Individual Access Roll Heat Sealer, complete the following procedures.

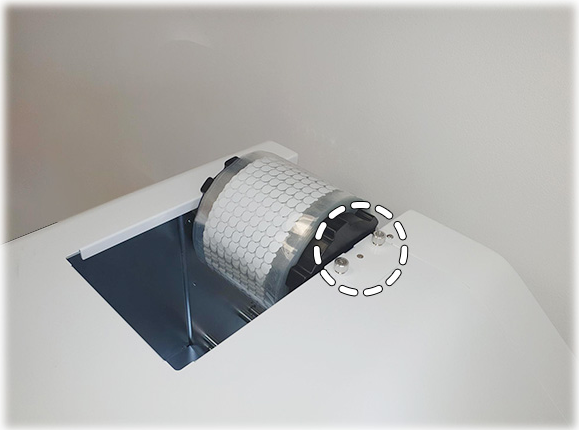
NOTE: Ensure that the adapter is removed from the adapter carrier before changing the seal roll.

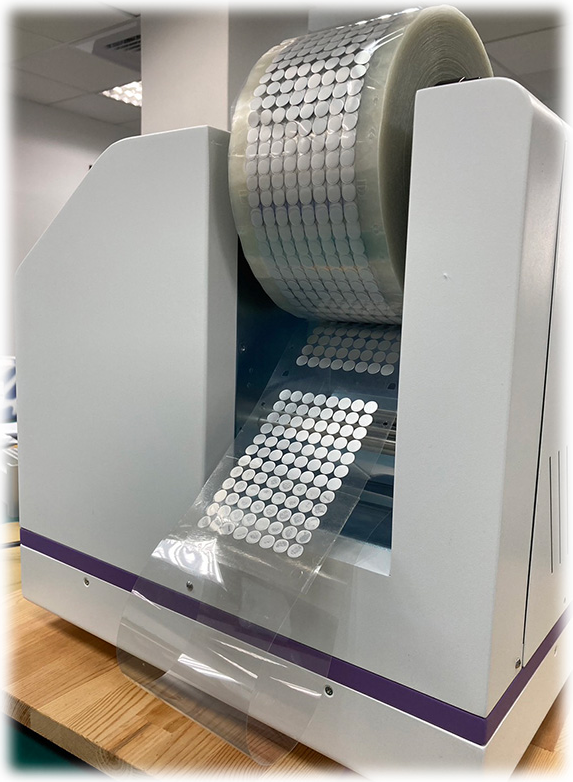


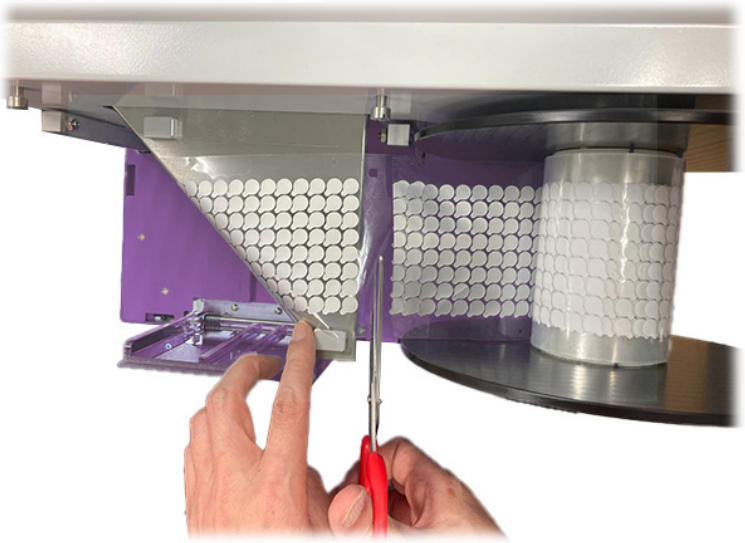
Step	Action
1.	Rotate the seal roll until the turning line is displayed. 

Step	Action
2.	Cut the seal at the turning line. 

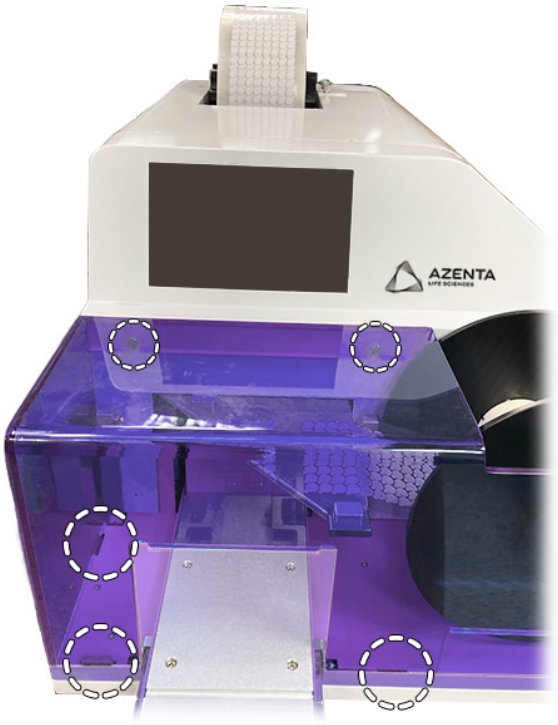
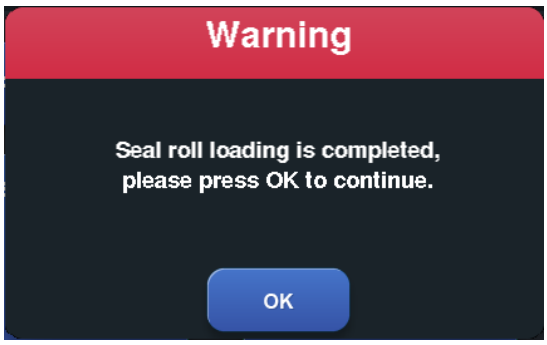
Step	Action
3.	Stick the end of seal to the top of the instrument. 
4.	Remove the roll holder shaft fixing bracket.
5.	Remove the seal roll by lifting it up.

Step	Action
6.	Place the roll holder on the device by locating the ends of the shaft on the seal roll support. Refer to "Installing Seal Roll on Roll Holder " on page 27. 
7.	Put the roll holder shaft fixing bracket back and screw it in. 

Step	Action
8.	Stick the end of the cut seal roll to the new seal roll. ***NOTE:*** *The sticking area should be at least 10 cm.* 

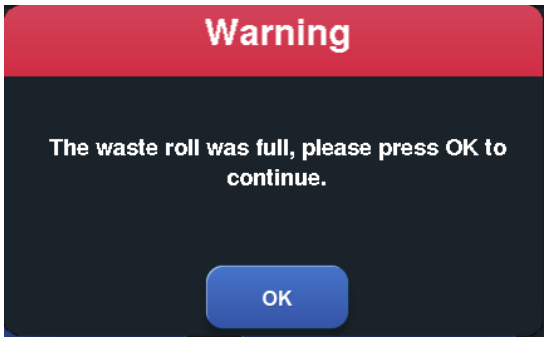
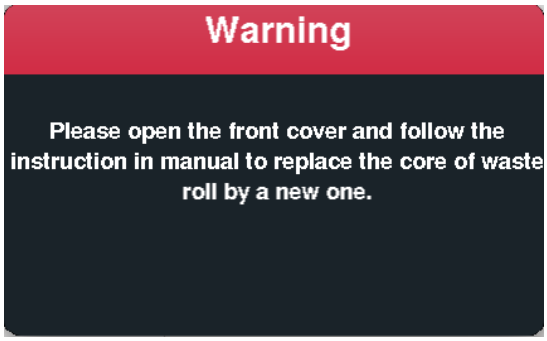
Step	Action
9.	Remove the front cover by lifting it up. 
10.	Cut the seal roll at the position between the 45 degree bracket and the waste seal roll. 
11.	Carefully stick the end of the waste roll onto the roll.

Step	Action
12.	Carefully pull out the seal from inside the instrument, so that it brings the starts of the new seal roll out through the front of the instrument. ***NOTE:*** *Ensure the new seal comes out with the seal.*
13.	Once the overlapping section is clear of the instrument, separate the two ends.
14.	Attach the seal roll to the waste seal roll core: a. Fold up the seal along the 45 degree bracket and align it with the lines between the two seal guiders. b. Pull the seal to the bottom of the waste roll core. c. Stick the end of the seal roll onto the waste seal roll core using a piece of tape, then rotate the waste seal roll motor for three more rotations counterclockwise. ***NOTE:*** *To make sure the end of the seal roll sticks firmly onto the waste seal roll core, wrap the seal roll around the waste core at least three times.*  

Step	Action
15.	Put the front cover back by putting it down. Ensure the front cover is placed on the two positioning pins and three positioning holes. The seal roll changing process is complete. 
16.	A warning message is displayed. Press **OK**. 

Waste Seal Roll Removing Procedure

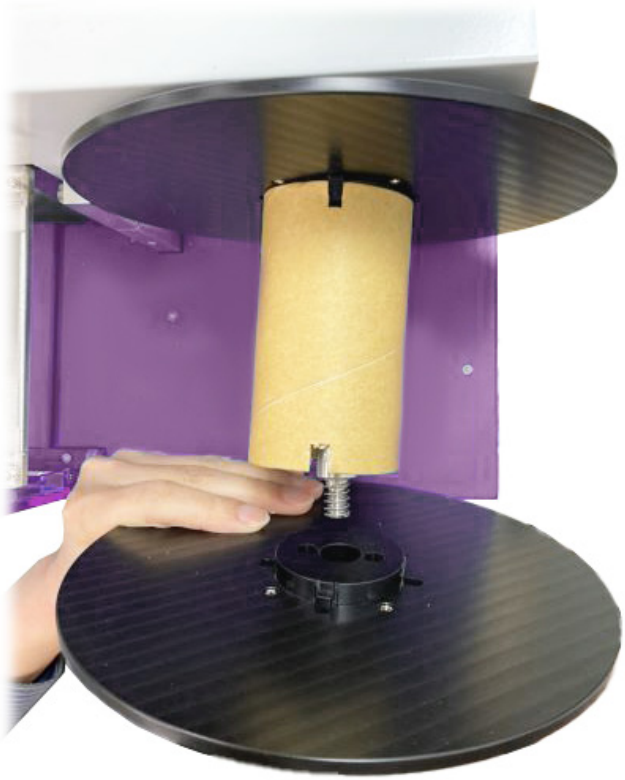
When the waste seal roll full warning is displayed, the full waste seal roll should be removed and another waste roll core should be placed.

Step	Action
1.	The following warning message is displayed. Press **OK**. 
2.	The following warning message is displayed. 

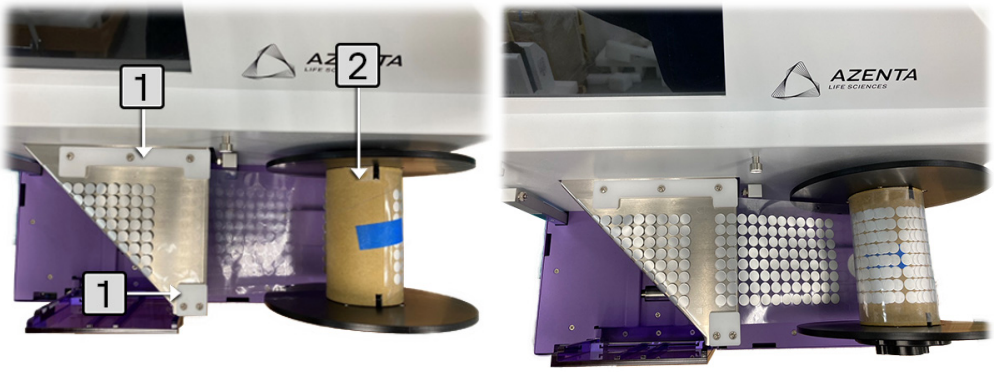
Step	Action
3.	Remove the front cover by lifting it up. 
4.	Cut the seal roll at the position between the 45 degree bracket and the waste seal roll. 

Step	Action
5.	Rotate the waste seal roll holder knob counter-clockwise to release it. 
6.	Remove the waste seal roll side plate.

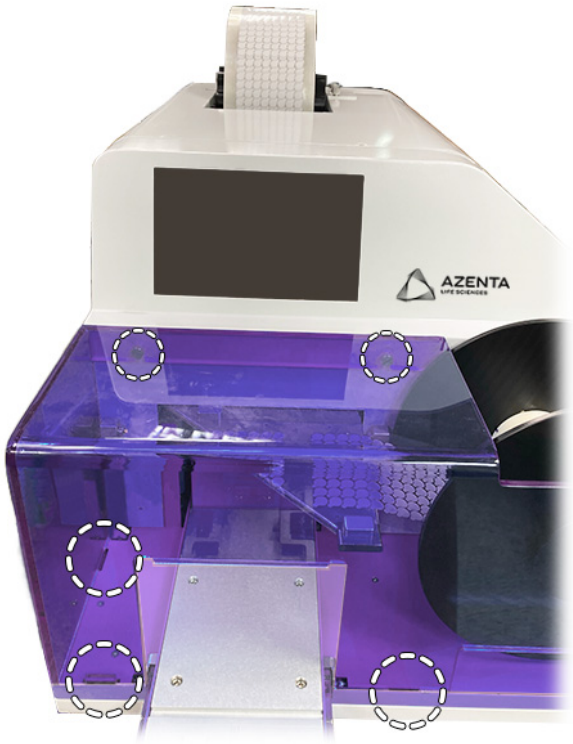
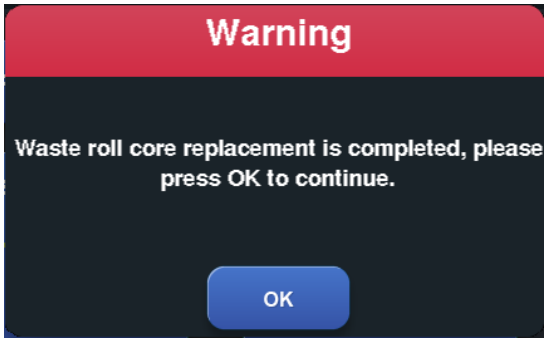
Step	Action
7.	Remove the waste seal roll and place a new core on the waste seal roll holder. 

Step	Action
8.	Put the waste seal roll side plate back and tighten the waste seal roll holder knob. 

Step	Action
9.	Attach the seal roll to the waste seal roll core: a. Fold up the seal along the 45 degree bracket and align it with the lines between the two seal guiders. b. Pull the seal to the bottom of the waste roll core. c. Stick the end of the seal roll onto the waste seal roll core using a piece of tape d. Rotate the waste seal roll motor counter-clockwise until it has wrapped around the waste seal roll core three times.



#	Part
1	Seal guiders
2	Waste seal roll core

Step	Action
10.	Put the front cover back by putting it down. Ensure the front cover is placed on the two positioning pins and three positioning holes. The waste seal roll removing process is complete. 
11.	The following warning message is displayed. Press **OK**. 

Fine Adjustment of the Plate Position

The best sealing results are achieved when the seal is placed precisely over the center of the plate. To achieve this, make fine adjustments to the plate position to improve the sealing quality.

To adjust the seal position, slightly move the frame of the adapter carrier. Use a flat-head screwdriver to rotate the adjustment screws. Rotate one full circle to adjust the adapter carrier approximately 1.0 mm.

The position of the plate can be checked by sealing a sample plate. If necessary, redo the procedure.

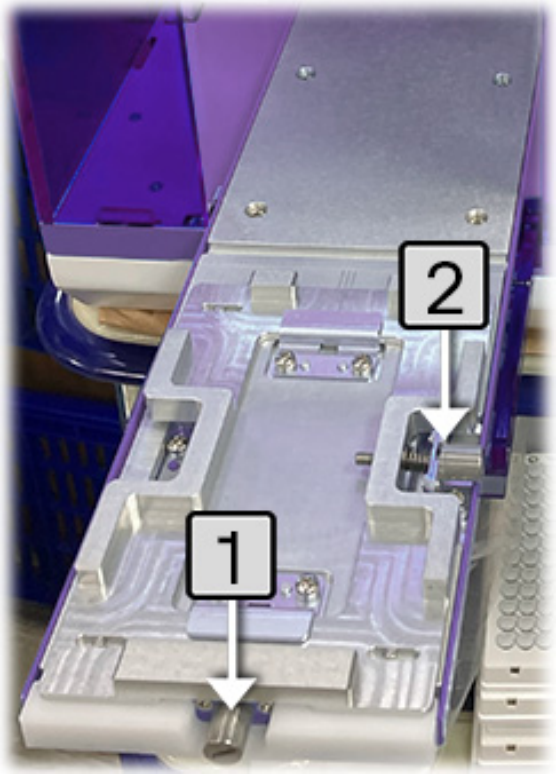
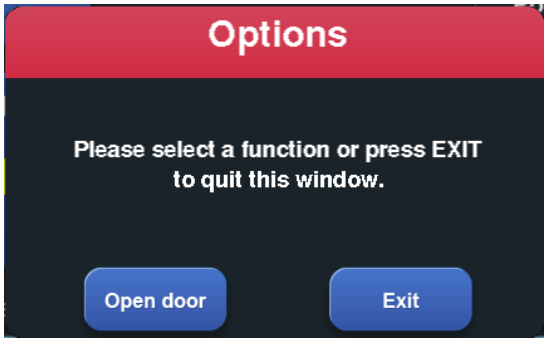
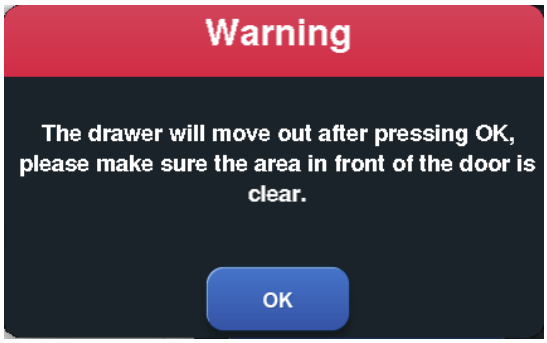


Figure 3-2: Adjustment screws on the Adapter Carrier

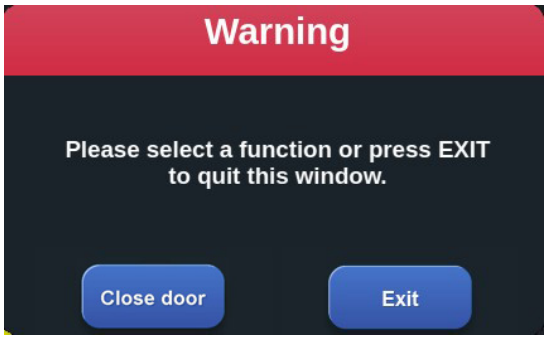
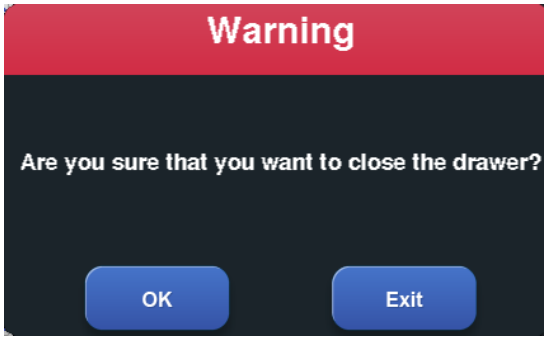
Number	Screw	Adjustment	Direction of rotation
1.	Front adjustment screw	Outward	Clockwise
		Inward	Counterclockwise
2.	Side adjustment screw	Left	Counterclockwise
		Right	Clockwise

Opening and Closing the Door

Opening the Door

Step	Action
1.	Press the **Options** icon on the touch screen.
2.	Press **Open door**.  The following warning message is displayed. 
3.	Ensure that there is nothing in the front of the door and press **OK**.

Closing the Door

Step	Action
1.	Press the **Options** icon on the touch screen.
2.	Press **Close door**. 
3.	The following warning message is displayed. Press **OK**. 

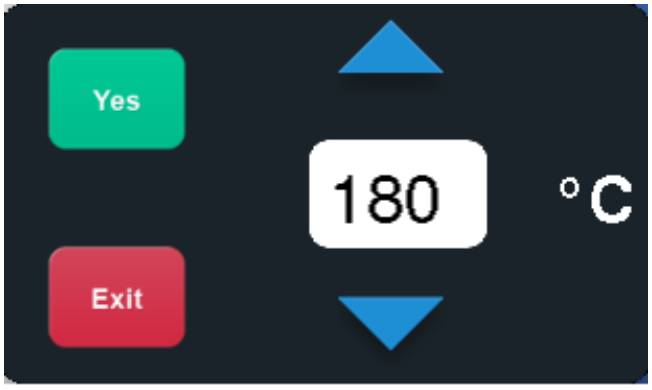
Setting the Sealing Parameters

To ensure an integral seal, adjust the sealing parameters.

The following procedures detail how to adjust the temperature, sealing time, and cooling setting of the Automated Individual Access Roll Heat Sealer to ensure optimized sealing conditions.

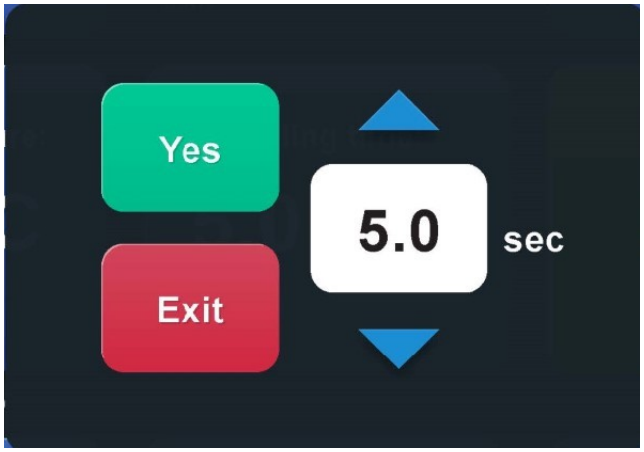
Temperature Setting

The temperature setting adjusts the temperature that the internal heat block is held at prior to sealing the plate. The temperature setting can be adjusted as follows.

Step	Action
1.	Press the icon that displays the set temperature. The temperature adjustment window is displayed. 
2.	To adjust the sealing temperature, press the **up** and **down arrows**. ***NOTE:*** *The adjustment range is 100~195 °C, or heater off. Pressing the touch screen repeatedly adjusts the temperature in 1 °C intervals. Pressing and holding your finger on the arrows initiates scrolling through the temperature settings in 5 °C intervals.*
3.	To confirm the displayed setting, press **Yes**. OR To revert to the original setting, press **Exit**. The newly set temperature is displayed on the main screen.

Time Setting

The time setting is a measure of the amount of dwell time (the time in which the heat block remains in contact with the sealing material on the microplate). The time setting can be adjusted as follows:

Step	Action
1.	Select the icon on the touch screen that shows the sealing time. The following time adjustment window is displayed. 
2.	To adjust the time setting, press the up and down arrows. ***NOTE:*** *The adjustment range is 1~10 seconds. Pressing the touch screen repeatedly adjusts the time in 0.1 second intervals. Pressing and holding your finger on the arrows initiates scrolling through the time settings in 0.5 second intervals.*
3.	To confirm the displayed setting, press **Yes**. To revert to the original setting, press **Exit**. The newly set time is displayed on the main screen.

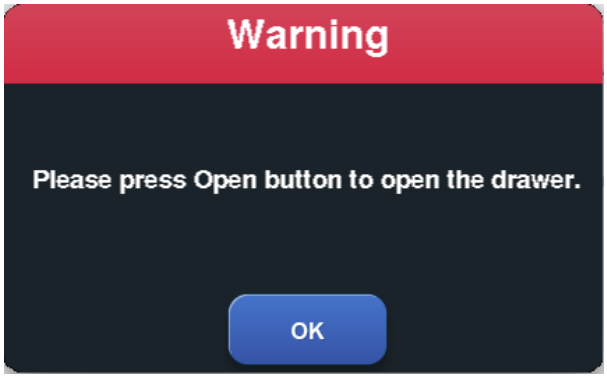
Cooling Setting

The cooling setting is a measure of the amount of dwell time (the time in which the heat block remains placed above, but is no longer in contact with the microplate after sealing). The cooling setting can be adjusted as follows:

Step	Action
1.	Select the icon on the touch screen that shows the current cooling setting. The following cooling time adjustment window is displayed. 
2.	To adjust the cooling time setting, press the **up** and **down arrows**. ***NOTE:*** *The adjustment range is 1~10 seconds. Pressing the touch screen repeatedly adjusts the time in 1 second intervals. Pressing and holding your finger on the arrows initiates scrolling through the time settings in 5 second intervals.*
3.	To confirm the displayed setting, press **Yes**. To revert to the original setting, press **Exit**. The newly set cooling time is displayed on the main screen.

Sealing a Plate

Procedure

Step	Action
1.	Turn on the device. The following warning message is displayed. 
2.	Press **OK**.
3.	Press the Options icon on the touch screen, and open the door. See "Opening and Closing the Door" on page 60.
4.	Place the microplate support adapter on the adapter carrier.
5.	Place a plate onto the adapter. ***NOTE:*** *Make sure the microplate support adapter and the plate are placed flat.*
6.	Wait for the heat block to reach the set temperature.
7.	Check the status of the heat block between the *Set temperature* and *Cooling* icons on the screen. The *Seal* icon is gray when the unit is heating or cooling. Once the set temperature is reached, the icon turns green.
8.	To finish sealing, press the **Seal** icon. ***NOTE:*** *Keep hands clear of the front door during operation.*

Power Failure Procedure

Follow these steps if there is a sudden power failure during the sealing process.

Step	Action
1.	Turn off the machine.
2.	Manually roll the waste seal roll. ***NOTE:*** *Any torn waste seal should be removed from the waste seal roll, otherwise the seal alignment will be impacted.*
3.	If the seal is stuck to the plate, the plate will be pulled out. If the seal is not stuck to the plate, restart the machine directly.

Power Saving Function

The power saving function can help you plan your experiment, reduce the power consumption, and increase the longevity of the heat block. During power saving mode, the **Power saving:on** button blinks. Touching the screen exits power saving mode and returns to normal operation mode. When you receive the instrument, this function is turned on at the default setting (4 hour, OFF). To turn off this function, press the **Power saving: on** button.

Setting Power Saving Parameters

The two parameters of the power saving function can be adjusted to suit the your needs. Touch and hold the **Power saving: on** for at least 3 seconds. The following screen is displayed:

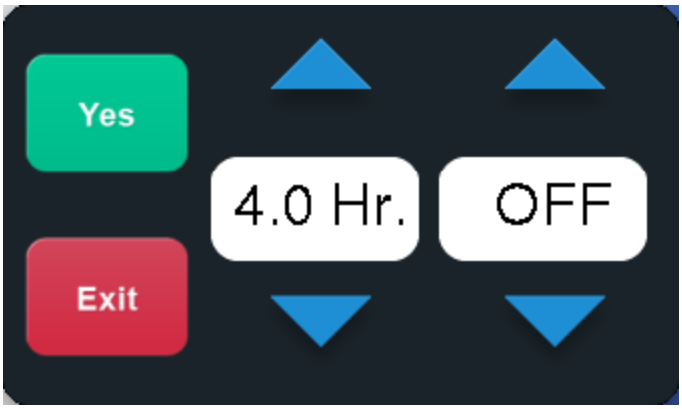


Figure 3-3: Power Saving Settings

Set the idle time parameter before power saving is activated. To adjust the time or temperature settings, press the **up** and **down arrows**. The minimum time duration that can be set is 0.5 hours and the maximum duration is 12 hours. Adjustments to the time and temperature settings can be made in 0.5 hour intervals.

The second parameter is the temperature the heat block is held at once the power saving duration starts. You have three options: heater off, 50°C, and 100°C. To navigate through the settings, press the **up** and **down arrows**. To save the settings, press **Yes**.

Protocol and Password Settings

Use the Protocol Management function to save the heat sealing settings for different microplates or heat seals. A password is used to protect the protocol settings. You can also protect a selected protocol without using a password by utilizing the Protocol Security Level.

To access the protocol window, press **Protocol** in the left hand corner of the screen. A protocol list with five functional icons, *New*, *Edit*, *Delete*, *Select*, and *Return*, is displayed on the screen below.

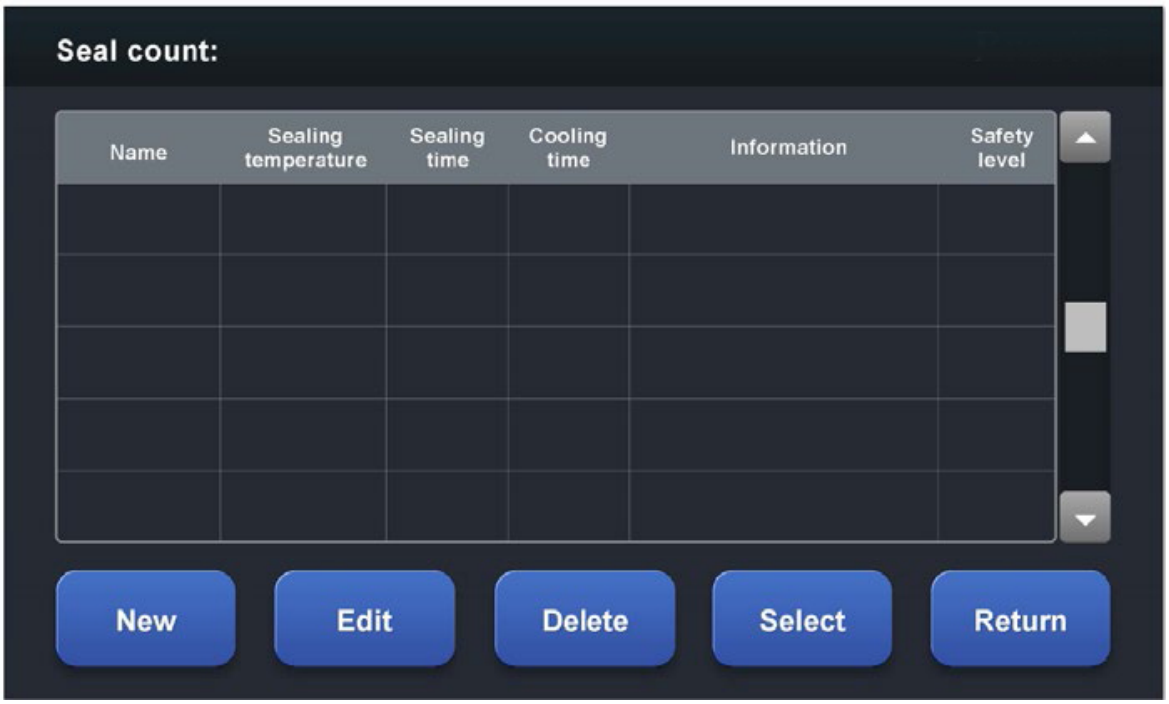


Figure 3-4: The Protocol Screen

Creating a Protocol

Step	Action
1.	In the left hand corner of the main screen, press **Protocol**.
2.	To create a new protocol, press **New**.
3.	Press the first column and type in the desired name of the protocol.
4.	Press the second column and type in the desired sealing temperature.
5.	Press the third column and type in the desired sealing time.
6.	Press the fourth column and type in the desired cooling time.
7.	Press the fifth column and type in any additional information to the protocol.
8.	To store the protocol, press **Save**. A protocol security level selection image is displayed. Select one of the three security levels (Refer to "Setting Protocol Security Level " on page 71).
9.	If the protocol does not need a password for protection, do not click the lock. To leave the window, press **Save**.
10.	To go back to the main screen, press **Select**.

Editing a Stored Protocol

Step	Action
1.	Press on the desired protocol in the list. ***NOTE:*** *Use the scroll bar if there are more protocols than fit on the screen.*
2.	Press **Edit**.
3.	Type in the desired parameters.
4.	To store the new setting, press **Save**.
5.	To return to the main screen, press **Return**.

Selecting a Protocol

Step	Action
1.	Press on the desired protocol in the list. ***NOTE:*** *Use the scroll bar if there are more protocols than fit on the screen.*
2.	Press **Select**.
3.	To return to the main screen, press **Return**. The protocol setting is displayed on the main screen.

Deleting a Stored Protocol

Step	Action
1.	Press the protocol you want to delete in the list.
2.	Press **Delete**. A warning message is displayed for confirmation.
3.	To delete the protocol, press **Yes**. If you do not want to delete the protocol, press **Exit**.

NOTE: You may need to enter a password depending on the level of security that was set for any particular protocol. Typing in the password is required for editing, deleting, or selecting a protected protocol.

Setting Protocol Security Level

Three security levels are available for the protocol protection on the Automated Individual Access Roll Heat Sealer: no password protection (open black padlock), low-level security (closed black padlock), and high-level security (closed red padlock), as shown in Table 3-1.

After you create a protocol and press **Save**, a password setting image is displayed. If a password setting image is not required, press **Save** again. If protocol protection is required, select the security level by pressing the box next to the padlock, as shown in Figure 3-5.

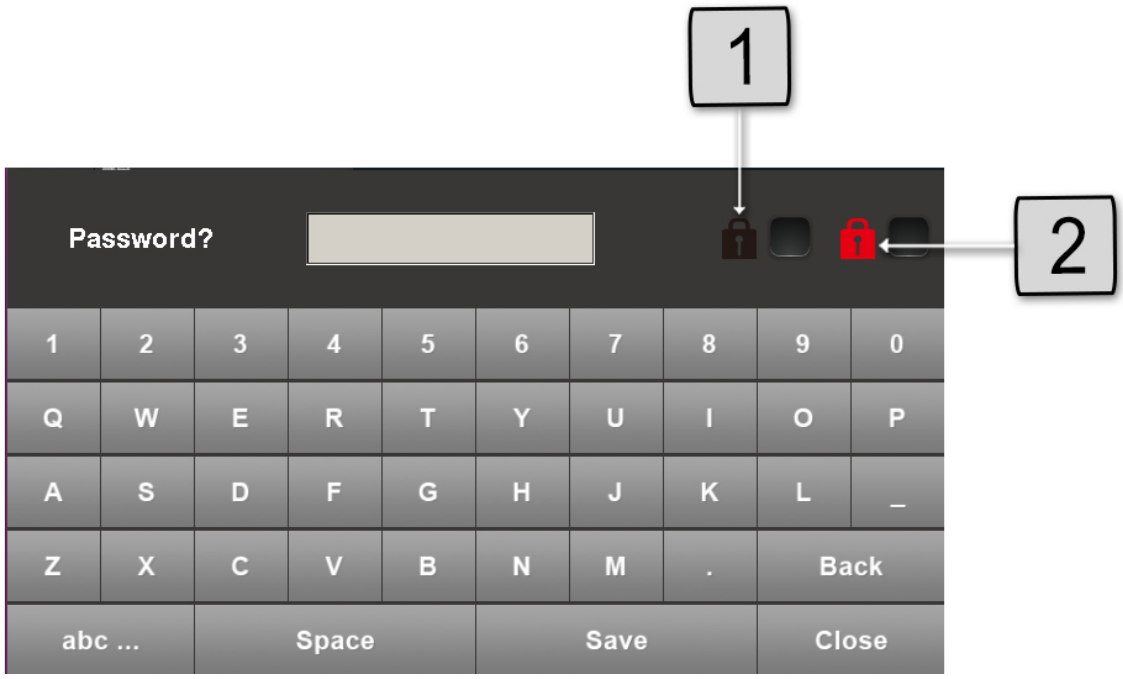


Figure 3-5: Password Settings Keyboard and Icons

Table 3-1: Description of Password Setting Icons

Number	Icon	Icon meaning
1		Low-security level
2		High-security level
Not pictured		No password protection

A black lock icon represents a low security protection. When a protocol is protected under low-security level, it is still possible to select different protocols from the main protocol menu. However, when editing any of the protocols saved with the black lock security, the appropriate password is required.

A red lock icon represents a higher level of security protection. It is designed to avoid unauthorized adjustment of the sealer during a production run. When a protocol is protected under high-security level, you cannot change the sealing parameters or change between protocols without first entering the password. Also, the password input is required for leaving the main screen.

NOTE: The maximum number of letters for a password is four.

Table 3-2: Descriptions of Protocols with Different Security Levels

Security level	No password protection	Low-level security	High-level security
Select protocol	OK	OK	Password required
Edit protocol	OK	Password required	Password required
Delete protocol	OK	Password required	Password required

Protocol Management

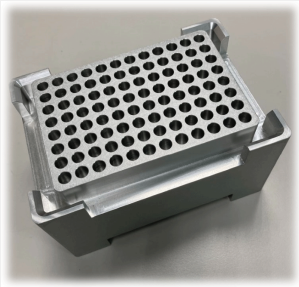
The Automated Individual Access Roll Heat Sealer has a built-in page, named *Administrator*, which is used to manage the protocol. It is at the top of the protocol list. The default password is 8888. When you receive the instrument, change the password.

When entering the *Administrator* page, you can delete the protected protocol or change the password of the administrator. This enables a lab manager to reorganize the protocol list in the device.

4. Optimizing Seal Quality

Adapter for Standard Plate Types

Table 4-1: Plate Types and Adapter

Adapter	Plate
96-well microplate support adapter 	4ti-0960/RA
	4ti-0753/4ti-0757
	4ti-1200
	4ti-1400/X
	4ti-0750/TA
	4ti-0750/P or /R

Random Access Heat Seal and Plates

Table 4-2: Plate Types and Seals

Seal	Plates
4ti-0522/RA-8	4ti-0753/757, 4ti-1200, 4ti-0750/TA
4ti-0522/RA-TAB	4ti-1400/X, 4ti-0960/RA
4ti-0532/RA	4ti-1400X, 4ti-0960/RA
4ti-0539/RA	4ti-1400/X, 4ti-0960/RA

5. Integration

Besides standalone operation, the Automated Individual Access Roll Heat Sealer can be integrated into a bigger system. While integrating the device may be fixed into a bigger system and controlled by the terminal.

Changing Rubber Feet to Screw Nuts

The rubber feet on the base plate, pictured below, can be removed.

Figure 5-1: Rubber Feet on Base Plate

There is a hexagon socket head crew and a spring washer in the center of the rubber foot. Use a hex screwdriver to remove the eight rubber feet from the bottom side of the device. When integrating this device, (8) M6 hexagon socket head screws should be tightened to the mounted nuts on the top side of the base plate.

Remote Communication

The Automated Individual Access Roll Heat Sealer device can be remotely controlled via its RS232 or USB ports in the side of the instrument, as pictured below. The SiLA driver installation is necessary to convert the USB signal to RS-232 signal for Realterm.

Figure 5-2: RS232 and USB Ports on an Automated Individual Access Roll Heat Sealer

The Automated Individual Access Roll Heat Sealer remote communication is shown below (all the communication is via ASCII). Contact Azenta Life Sciences for more details in the API user manual.

Protocol

Step	Action
1.	Connect the Automated Individual Access Roll Heat Sealer and the computer using an RS232 or USB-B cable.
2.	Turn on the device.
3.	Execute a terminal emulator program (e.g. realterm).
4.	Input the command `*00SSzz!` to switch to integration mode.
5.	Input commands.

Serial Port Setup

Parameter	Setup
Baud	19200
Parity	None
Data bits	8 bits
Stop bits	1 bit
Hardware flow control	None

Basic Commands

Function	Operation	ASCII
Set sealing temperature	Set the sealing temperature to 170 °C	`*00DH=0170zz!`
Set sealing time	Set the sealing time to 3.1 seconds	`*00DT=0031zz!`
Set cooling time	Set the cooling time to 8 seconds	`*00DC=0008zz!`
Seal	Conduct seal action	`*00GSzz!`
Door open	Open the drawer	`*00MO=0001zz!`
Door close	Close the drawer ***NOTE:*** *The front cover must be closed*	`*00MC=0000zz!`
Operation mode switch	Switch control mode from remote control computer	`*00SSzz!`
Waste seal roll motor running	The waster roll motor will run continuously	`*00MKzz!`
Waste seal roll motor stop running	The waste roll motor stops running	`*00MKSzz!`
Heater off	Turn off the heater	`*00H0zz!`

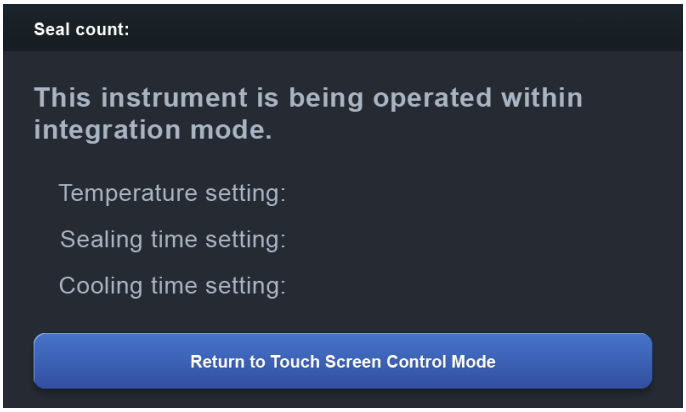
System Status Message Format

1 byte	1 byte	3 bytes	1 byte	n bytes	2 bytes	1 byte
*	T	Time (00:18:51)	=	Parameter 1 ~ Parameter 9 (1519, 0, 0, 00, 00, 01066, 000, 1, 0I0)	CRC (I0)	!
		hh:mm:ss		Every parameter is partitioned with a comma	Refer to the API user manual.	

Parameter 1 ~ parameter 9:

Item	Description	Definition
1	Current temperature (°C)	Real-time temperature *10
2	System status	0 = idle 1 = busy
3	Heating block status	0 = heater off 1 = ready 2 = heating 3 = cooling 4 = converging
4	Error code	0 = no error 1 ~ 21 (Need to check the Error code table in the service manual)
5	Warning message code	1 ~ 11 (Need to check the warning message table in the service manual)
6	Sensors status	Refer to the API user manual.
7	Countdown (sealing time)	= sealing time *10
8	Integration mode	0 = touchscreen control mode 1 = integration mode
9	De-seal mode	0 = hide seal select mode 1 = seal mode 2 = de-seal mode

Leave Integration Control Mode and Get Back to Touchscreen Control Mode

Step	Action
1.	Press the **Return to Touch Screen Control Mode** on the screen. 
2.	Reboot the instrument. ***NOTE:*** *If you reboot the instrument, it will return on the Touch Screen Control Mode.*
3.	Touchscreen control is active.

> ***NOTE:*** If any error occurred, please check the error number in the System Status Message. Then reboot the instrument to clear the error conditions. If the same error occurs frequently, please refer to "Error Messages" on page 84.

6. Routine and Preventative Maintenance

Cleaning the Heat Block

During the sealing process, the heat block inside the sealing chamber descends and presses the seal onto the plate surface. Although the heat block is coated with non-stick material, seal material, residue, and dirt can accumulate on the heat block over time and this can affect the sealing quality. It is therefore necessary to regularly monitor the heat block and clean it to maintain optimal and reliable performance.

Materials needed for cleaning the heating block:

- Soft and anti-scratch cloth
- Cleaning solution (70% ethanol)

Step	Action
1.	Ensure the power to the unit is turned off.
2.	Ensure the heat block is at room temperature.
3.	Open the maintenance case in the middle of the unit.
4.	Dampen the anti-scratch with cleaning solution.
5.	Wipe the heat block.
6.	Put the maintenance case back.

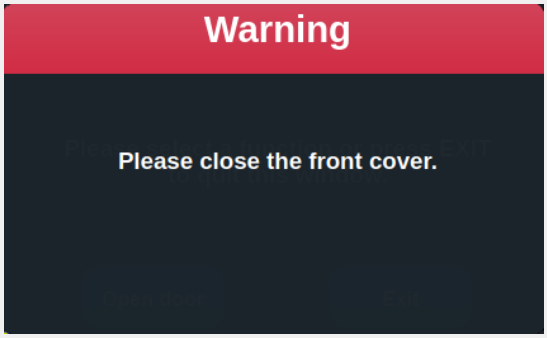
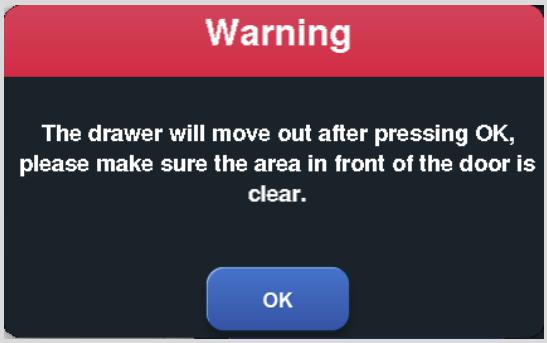
NOTE: It is important not to damage the coating on the heat block because it affects the sealing performance.

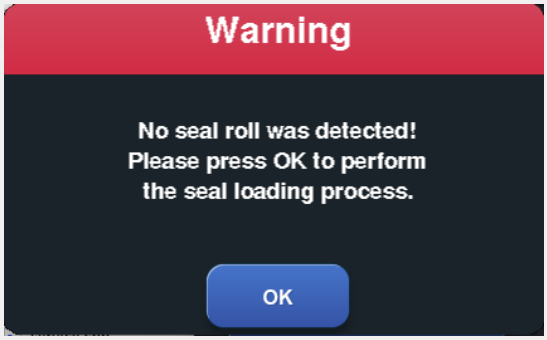
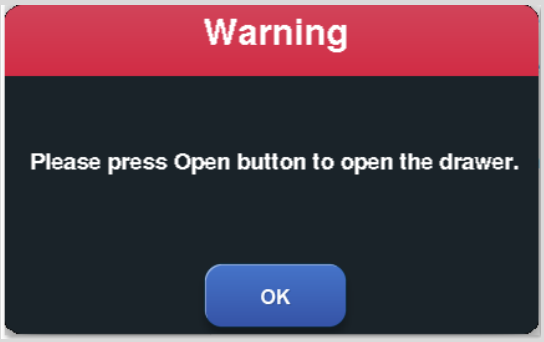
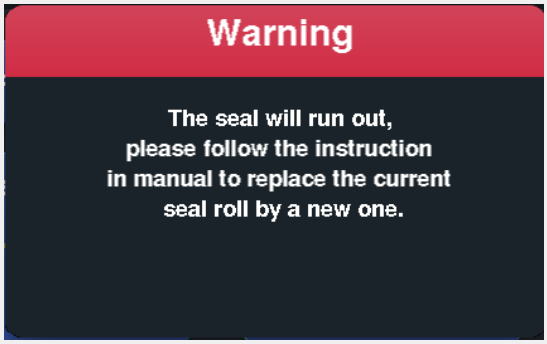
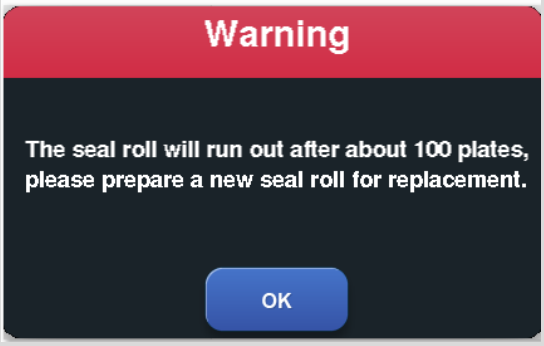
Cleaning the Touch Screen

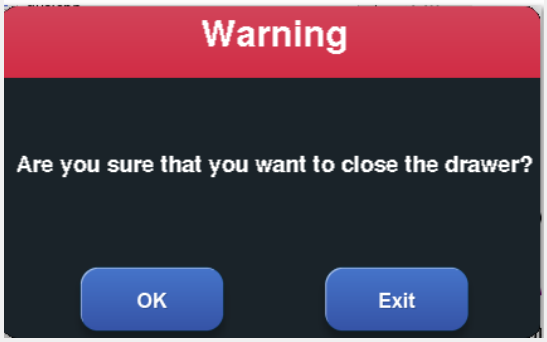
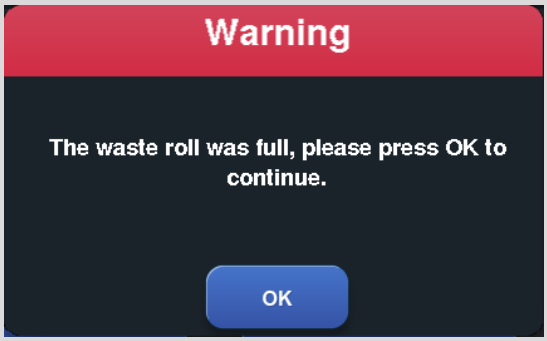
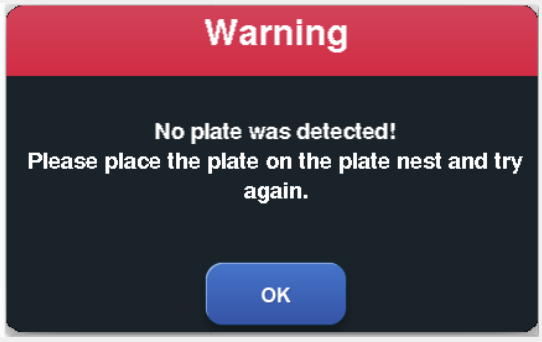
A lint-free cloth is required for touch screen cleaning. Do not use fluid cleaners on the touch screen. Any fluid that gets between the screen and the screen frame can damage the device.

7. Troubleshooting

Warning Messages

Message	Reason	Resolution
	The front cover sensor has not detected the front cover.	Close the the front cover.
	The drawer end sensor has not detected the drawer, or the user has pressed the **Open door** button.	Ensure the area in front of the door is clear and press **OK** to confirm.

Message	Reason	Resolution
	The sensor cannot find the seal within 5 seconds of the waste roll motor running.	The sealing film has run out. Replace the seal roll. See "Seal Roll Loading Procedure" on page 27
	The drawer home sensor detects the drawer after booting is complete.	Press **Open** to open the door before placing an adapter and a plate. See "Opening and Closing the Door" on page 60.
	The seal sensor detects two black tapes between two positioning holes.	The seal will run out. See "Seal Roll Changing Procedure" on page 44.
	The low seal sensor is active.	The seal roll will run out after about 100 plates. Reminder to prepare a new seal roll for replacement.

Message	Reason	Resolution
	User pressed the **Close door** button.	Select one of the following options: • Press **OK** to close the door of the instrument. • Press **Exit** to return to the main screen.
	The waste roll full sensor is active.	Remove the waste seal roll and replace with a new core. See "Waste Seal Roll Removing Procedure" on page 52.
	The plate sensor cannot detect the plate on the plate adapter.	Place a plate on the adapter and press **OK**.

Error Messages

If an error occurs, the machine beeps and a code is displayed on the screen.

Error	Event	Condition	Response
Error 1	Heater overheat	Over 220°C.	Reboot the unit. If the problem persists, contact your Azenta Life Sciences service representative.
Error 2	Heater temperature ramping error	The heating platen cannot reach the set temperature in 5 minutes.	Reboot the unit. If the problem persists, contact your Azenta Life Sciences service representative.
Error 3	Heater temperature inaccuracy error	After reaching the set temperature, the heating platen cannot maintain the temperature and it goes over ±20°C, 30 seconds continuously.	Contact your Azenta Life Sciences service representative.
Error 4	Temperature sensor error	PT1000 error (open or short)	Contact your Azenta Life Sciences service representative.
Error 5	The heating platen movement downwards has failed	• The press sensor cannot detect the heating platen over 5100 pulses after the output pressing down command. • No plate nest	Reboot the unit. If the problem persists, contact your Azenta Life Sciences service representative.
Error 6	The heating platen moving upwards has failed	The home sensor cannot detect the heating platen over 5600 pulses after the output moving up command.	Reboot the unit. If the problem persists, contact your Azenta Life Sciences service representative.
Error 7	45 degree seal guide bracket moving upwards has failed	The home sensor cannot detect this bracket over 10000 pulses after the output moving up command.	Power off the unit and check there is no obstruction at the bracket. If the problem persists, contact your Azenta Life Sciences service representative.
Error 8	45 degree seal guide bracket moving downwards has failed	The end sensor cannot detect this bracket over 10000 pulses after the output moving down command.	Power off the unit and check there is no obstruction at the bracket. If the problem persists, contact your Azenta Life Sciences service representative.

Error	Event	Condition	Response
Error 9	Drawer moving forward to the outside position has failed	The end sensor cannot detect the drawer over 10000 pulses after the output moving to the outside position command.	Power off the unit and check there is no obstruction at the bracket. If the problem persists, contact your Azenta Life Sciences service representative.
Error 10	Drawer moving backward to the inside home position has failed	The home sensor cannot detect the drawer over 10000 pulses after output moving to the home position command.	Power off the unit and check there is no obstruction at the bracket. If the problem persists, contact your Azenta Life Sciences service representative.
Error 11	MCU ADC abnormal	• ADC does not renew after 10 seconds then an error occurs. • Communication between MCU and ARM is detected by ARM. If the communication fails, then *Uart connect error! Please reboot the unit* is displayed.	Contact your Azenta Life Sciences service representative.
Error 12	MCU self-detect error	• Oscillator fault occurs • Access violation to the flash memory	Contact your Azenta Life Sciences service representative.
Error 13	Seal roll motor error or is not working well	The seal sensor can find the seal, but cannot find the position holes (over 20000 steps) during: • Power on self-test • Sealing process	Contact your Azenta Life Sciences service representative.
Error 14	Heater home sensor missing	Detect the position of the heating platen before drawer moving. If the heating platen home sensor is not detected then there is an error.	Contact your Azenta Life Sciences service representative.
Error 15	Waste roll motor error or is not working well	Seal sensor can find the seal but cannot find the position holes (over 20000 steps) during: • Power on self-test • Sealing process	Reload the seal. If the problem persists, contact your Azenta Life Sciences service representative.
Error 16	Sealing process error	When the sealing is finished, the drawer left the home sensor, but the middle sensor cannot detect the drawer over 25000 steps: • Waste seal cannot pull the drawer	Contact your Azenta Life Sciences service representative.
Error 17	Heater motor error	The driver IC is over the current.	Contact your Azenta Life Sciences service representative.
Error 18	45 degree seal guide bracket motor error	The driver IC is over the current.	Contact your Azenta Life Sciences service representative.

Error	Event	Condition	Response
Error 19	Drawer motor error	The driver IC is over the current.	Contact your Azenta Life Sciences service representative.
Error 20	Seal roll motor error	The driver IC is over the current.	Contact your Azenta Life Sciences service representative.
Error 21	Waste seal roll motor error	The driver IC is over the current.	Contact your Azenta Life Sciences service representative.

NOTE: The instrument must be rebooted for recovery.

8. Appendices

Appendix A: WEEE Statement (European Union)

The symbol above indicates that Waste Electrical and Electronic Equipment (WEEE) is not to be disposed of as unsorted municipal waste. Equipment marked with this symbol is to be collected separately.

The objectives of this program are to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally. Specific treatment of WEEE is indispensable in order to avoid the dispersion of pollutants into the recycled material or waste stream. Such treatment is the most effective means of protecting the customer's environment.

The waste collection, reuse, recycling, and recovery programs available to Azenta Life Sciences-customers, vary by customer location. Please contact the responsible body (e.g., your laboratory manager) for information about local requirements.

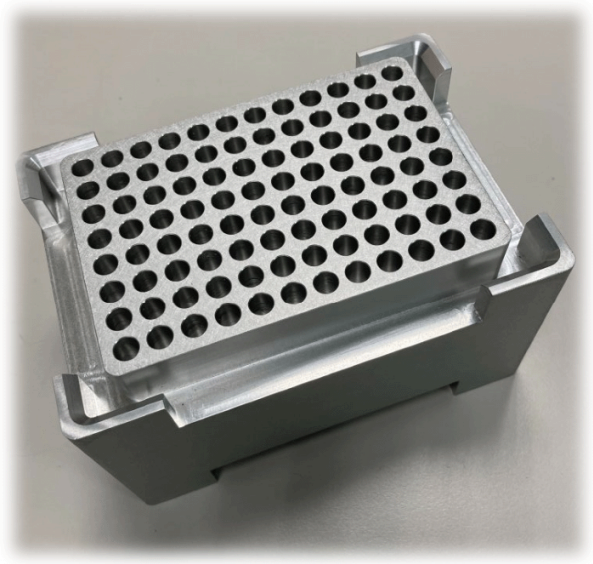
Appendix B: Technical Specifications

Specification	Description
Model name	Automated Individual Access Roll Heat Sealer
Product code	59-1000
Dimension (W x D x H)	400 x 680 x 385 mm ***NOTE:*** *Additional space is required if large seal rolls are used.*
Sealing temperature range	100 - 195 °C (1 °C intervals)
Sealing time range	1 - 10 sec (0.1 sec. intervals)
Cooling time range	1 - 10 sec (1 sec. intervals)
Weight (without roll)	52 kg
Power supply	V in: AC100 - 240V ± 10%, 50/60 Hz
Power consumption	700W (max)
Fuse	T8AH, 250 Vac
Overvoltage category	II
Working temperature range	15 - 30 °C
Operation humidity (RH)	0 - 85%
Max. operating altitude	2000 m
Connection	RS-232 serial port, USB ports (Type A&B)
Location	Indoor use only
Pollution degree	2

NOTE: Specifications are subject to change without prior notice.

Appendix C: Ordering Information and Accessories

Part Number	Description	Quantity
59-1001	Seal loading tool 	1
59-1002	Roll holder set 	1
59-1003	Waste roll core 	2

Part Number	Description	Quantity
59-1004	96-well microplate support adapter 	1

Appendix D: Shipping Instruction

Following these instructions to safeguard the Automated Individual Access Roll Heat Sealer during shipment. Azenta Life Sciences does not cover shipping costs or damaged caused by shipping. If you fail to follow these instructions, warranty for your unit will be declared void.

Shipping Bracket

Before boxing the unit up, you must ensure that the door is closed and the shipping bracket (seen below) is fixed in place fully. The shipping bracket locks the shuttle in place and restricts movement during transit.

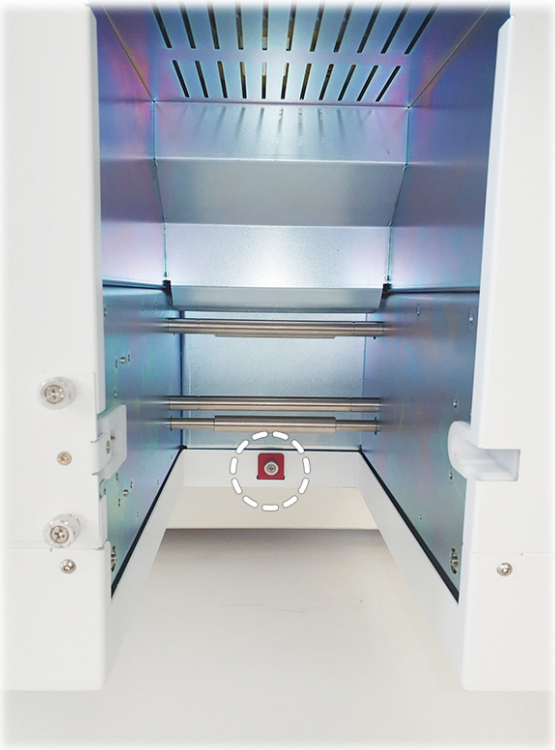


Figure 8-1: Shipping Bracket

CAUTION

Two-Person Lift Recommended

This product weighs 52 kg (approximately 115 lbs). Improper lifting may result in personal injury.

- Do not attempt to lift this product alone. Always use 2-person lift techniques or a lift aid.

Packing the Device into the Shipping Box

Step	Action
1.	Once the shuttle is locked in place, place the unit on the paper pallet. Ensure the Automated Individual Access Roll Heat Sealer is sitting within the cut-out section of the protective foam. ***NOTE:*** *Ensure the adapters are removed from the unit prior to putting the Automated Individual Access Roll Heat Sealer in the box. The Automated Individual Access Roll Heat Sealer must be packed in the box and equipped with the paper pallet before being shipped.* 
2.	Cover the Automated Individual Access Roll Heat Sealer with protective film. Put the protective foams on all four sides. Add the carton. 

Step	Action
3.	Pack the adapter and roll holder in the supplied accessories box. 
4.	Pack the waste seal roll core and the four power cords in a plastic bag. 

Step	Action
5.	Add the top layer of protective foam packaging to secure the Automated Individual Access Roll Heat Sealer in place. Put the accessories box, accessories bag, documents, and sealing tool inside the protective foam as pictured below: 
6.	Ensure there are no boxes stacked on top of the Automated Individual Access Roll Heat Sealer box.