

G5585B PlateLoc Thermal Microplate Sealer

User Guide



Original Instructions

Notices

Manual Part Number

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Contact Information

Agilent Technologies Inc.
Automation Solutions
5301 Stevens Creek Blvd.
Santa Clara, CA 95051
USA

Web:
<https://www.agilent.com>

Contact page:
<https://www.agilent.com/en/contact-us/page>

Documentation feedback:
documentation.agilent.com

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Safety Notices

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

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Preface

This preface contains the following topics:

- [“About this guide” on page vi](#)
- [“Accessing Agilent Automation Solutions user information” on page viii](#)

About this guide

Who should read this guide

This user guide is for people with the following job roles:

Job role	Responsibilities
Installer	Unpacks, installs, and tests the device before it is used.
Integrator	Configures hardware and writes software.
Lab manager, administrator, or technician	• Manages the automation system that contains the device • Develops the applications that are run on the system • Develops training materials and standard operating procedures for operators
Operator	Performs the daily production work on the device and solves routine problems.

What this guide covers

This guide contains the safety guidelines and the installation, setup, operation, and maintenance procedures for the PlateLoc Thermal Microplate Sealer.

This guide does not provide instructions for the VWorks software or third-party software. For more information about these topics, see the relevant user guides.

Software version

This guide documents PlateLoc Diagnostics version 13.1.1.

What is new in this edition

This revision updates the hot plate cleaning procedure to use the Agilent HotPlate Cleaning Kit. See ["Cleaning the hot plate" on page 89](#).

This revision updates the laboratory requirements for the compressed air flow rate. See ["Compressed air requirements" on page 27](#).

This edition documents the PlateLoc color touchscreen and includes updates in safety compliance.

Note: If your device has a black-and-white touchscreen, see the previous edition of the [PlateLoc Thermal Microplate Sealer User Guide](#).

Related guides

Use this guide in conjunction with the following:

- [Automation Solutions Products General Safety Guide](#). Provides general safety information and describes potential safety hazards that you might encounter when using Automation Solutions products. A copy of this safety guide is included with your shipment.
- [PlateLoc Seal-Loading Card](#). Functions as a seal-loading accessory and provides seal-loading instructions. The printed card (part number G5402-90002) is included with the PlateLoc Sealer.
- [PlateLoc Thermal Microplate Sealer Quick Start Guide](#). Provides safety guidelines and procedures for starting up the device and sealing microplates.
- [PlateLoc Sealer ActiveX version 13.0 User Guide](#). Describes the ActiveX controls for the PlateLoc.
- [PlateLoc Thermal Plate Sealer Seal Selection Guide](#). Provides guidelines on the parameter settings for various types of microplates and seal material.
- [VWorks Automation Control Setup Guide](#). Explains how to define labware and labware classes, liquid classes, and pipetting techniques, and how to track and manage labware in storage.
- [VWorks Automation Control User Guide](#). Explains how to create protocols, and set task parameters for each device in the system.

If the PlateLoc Sealer is a device in a third-party system, see the relevant third-party system guides.

Related information

For more information about...	See...
How to access different formats of this user guide	“Accessing Agilent Automation Solutions user information” on page viii
Reporting problems	“Reporting problems” on page 101

Accessing Agilent Automation Solutions user information

About this topic

This topic describes the different formats of user information and explains how to access it for the Agilent Automation Solutions products.

Where to find user information

The Automation Solutions user information is available in the following locations:

- *Knowledge base.* The help system that contains information about all the Automation Solutions products is available from the Help menu within the VWorks software.
- *PDF files.* The PDF files of the user guides are installed with the VWorks software and are on the software CD that is supplied with the product. A PDF viewer is required to open a user guide in PDF format. You can download a free PDF viewer from the internet. For information about using PDF documents, see the user documentation for the PDF viewer.
- *Agilent website.* You can search the online knowledge base or download the latest version of any PDF file from the Agilent website at www.agilent.com/chem/askb.

Accessing safety information

Safety information for the Agilent Automation Solutions devices appears in the [Automation Solutions Products General Safety Guide](#) and in the corresponding device safety guide or user guide.

You can also search the knowledge base or the PDF files for safety information.

Using the knowledge base

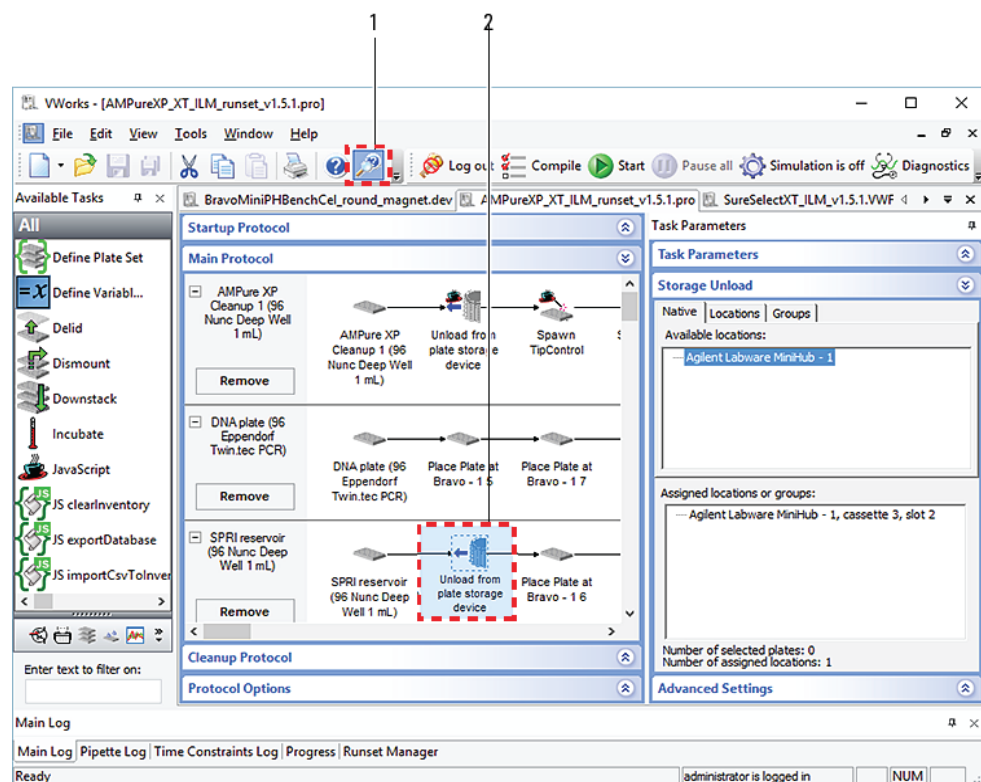
Knowledge base topics are displayed using web browser software such as Microsoft Internet Explorer and Mozilla Firefox.

Note: If you want to use Internet Explorer to display the topics, you might have to allow local files to run active content (scripts and ActiveX controls). To do this, in Internet Explorer, open the **Internet Options** dialog box. Click the **Advanced** tab, locate the **Security** section, and select **Allow active content to run in files on my computer**.

To open the knowledge base, do one of the following:

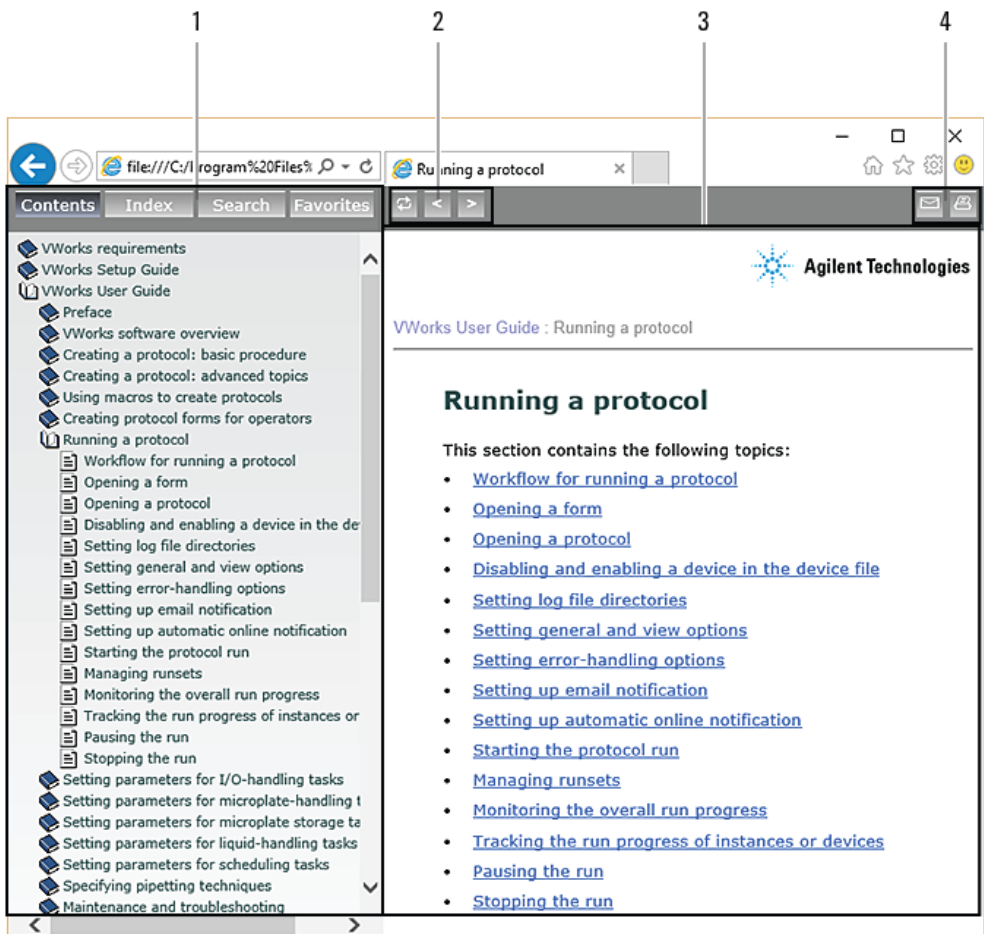
- From within VWorks software, select **Help > Knowledge Base** or press F1.
- From the Windows desktop, do one of the following:
 - *Windows 10.* Select **Start > All Apps > Agilent Technologies > VWorks Knowledge Base**.
 - *Windows 7.* Select **Start > All Programs > Agilent Technologies > VWorks > User Guides > VWorks Knowledge Base**.

Opening the help topic for an area in the VWorks window

**To access the context-sensitive help feature:**

- 1 In the main window of the VWorks software, click the help button . The pointer changes to . Notice that the different icons or areas are highlighted as you move the pointer over them.
- 2 Click an icon or area of interest. The relevant topic or document opens.

Features in the Knowledge Base window



Item	Feature
1	Navigation area. Consists of four tabs: - Contents. Lists all the books and the table of contents of the books. - Index. Displays the index entries of all of the books. - Search. Allows you to search the Knowledge Base (all products) using keywords. You can narrow the search by product. - Favorites. Contains bookmarks you have created.
2	Navigation buttons. Enable you to navigate through the next or previous topics listed in the Contents tab.
3	Content area. Displays the selected online help topic.
4	Toolbar buttons. Enable you to print the topic or send documentation feedback by email.



1 Safety guidelines

This section contains the following topics:

- [“General safety information” on page 2](#)
- [“Safety and regulatory compliance” on page 3](#)
- [“Stopping in an emergency” on page 5](#)
- [“Potential hazards” on page 5](#)

General safety information

Before installing and using the PlateLoc Sealer

Before using the PlateLoc Sealer, make sure that you are properly trained in:

- General laboratory safety
- The correct and safe operation of the PlateLoc Sealer
- The correct and safe operation of lab automation systems or components used in combination with the PlateLoc Sealer

General safety precautions

For the general safety precautions, the intended product use statement, and the list of safety labels, see the [Automation Solutions Products General Safety Guide](#).

Related information

For information about...	See...
General precautions, intended product use statement, and list of safety labels	Automation Solutions Products General Safety Guide
Precautions for potential hazards specific to the PlateLoc Sealer	"Potential hazards" on page 5
Regulatory compliance	"Safety and regulatory compliance" on page 3

Safety and regulatory compliance

Compliance regulations and standards

The PlateLoc Sealer complies with the applicable EU Directives and bears the CE mark. See the Declaration of Conformity or Declaration of Incorporation, as applicable, for details. The PlateLoc Sealer is designed to comply with the regulations and standards listed in the following table.

Regulatory Compliance	Standard
EMC	
European Union	EMC Directive 2014/30/EU
	IEC 61326-1:2012 / EN 61326-1:2013
Canada	ICES/NMB-001:2006
Australia/New Zealand	AS/NZS CISPR 11:2011
RoHS	
European Union	RoHS Directive 2011/65/EU
Safety	
European Union	Machinery Directive 2006/42/EC
	IEC 61010-1:2001 / EN 61010-1:2001
	IEC 61010-2-081:2001 / EN 61010-2-081:2002
Canada	CAN/CSA-C22.2 No. 61010-1-04
	CAN/CSA-C22.2 No. 61010-2-010:04
USA	ANSI/UL Std. No. 61010-1:2005

Electromagnetic compatibility

If the PlateLoc Sealer causes interference with radio or television reception, which can be determined by turning the device off and on, try one or more of the following measures:

- Relocate the radio or television antenna.
- Move the device away from the radio or television.
- Plug the device into a different electrical outlet, so that the device and the radio or television are on separate electrical circuits.
- Make sure that all peripheral devices are also certified.
- Make sure that appropriate cables are used to connect the device to peripheral equipment.
- Consult your equipment dealer, Agilent Technologies, or an experienced technician for assistance.

Changes or modifications not expressly approved by Agilent Technologies could void the user's authority to operate the equipment.

South Korea EMC Declaration

The following EMC declaration applies to:

- 1 All models that were registered on or after 7 December 2016, but
- 2 Not to models included in a product family or series that was registered before 7 December 2016 (even if the model was added to the product family or series on or after 7 December 2016).

EMC declaration for South Korea

This equipment has been evaluated for its suitability for use in a commercial environment. When used in a domestic environment, there is a risk of radio interference.

EMC 선언

다음 EMC 선언은

- 1 2016년 12월 7일 자 또는 이후에 등록된 모든 모델은,
- 2 2016년 12월 7일 이전에 등록된 제품군 또는 시리즈를 포함한 모델은 2016년 12월 7일 자 또는 이후에 제품군 또는 시리즈에 추가되었을지라도 적용 되지 않습니다

사용자안내문

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다 .
※ 사용자 안내문은 " 업무용 방송통신기자재 " 에만 적용한다 .

Sound emission declaration

Sound pressure: $L_p < 70$ dB according to EN ISO 779:2010.

Schalldruckpegel: $L_p < 70$ dB nach EN ISO 779:2010.

Related information

For information about...	See...
General precautions, intended product use statement, and list of safety labels	Automation Solutions Products General Safety Guide
Potential hazards	"Potential hazards" on page 5
Stopping in an emergency	"Stopping in an emergency" on page 5

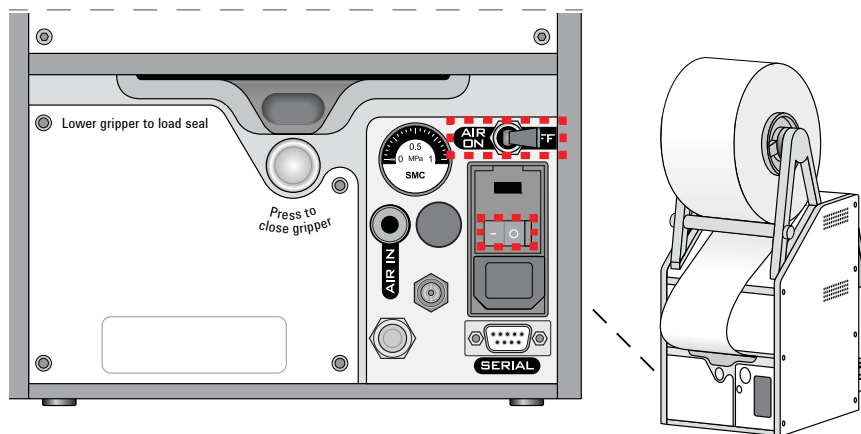
Stopping in an emergency

Emergency stops

To stop in an emergency:

- 1 Turn off the PlateLoc Sealer by setting the power switch to off (**O**).
- 2 Turn off the air supply by setting the AIR ON/OFF switch to OFF.

Figure PlateLoc power switch and AIR ON/OFF switch (rear view)



If the PlateLoc Sealer is integrated in an automation system, follow the emergency-stop protocol for that system.

Related information

For information about...	See...
General safety guidelines	Automation Solutions Products General Safety Guide
Potential hazards	"Potential hazards" on page 5

Potential hazards

About this topic

This topic contains precautions about potential hazards that are specific to the PlateLoc Sealer. In addition to the following potential hazards, make sure that you understand how to avoid the general hazards described in the [Automation Solutions Products General Safety Guide](#).

Chemical hazards

WARNING

To avoid potential injury, do not use chemicals that have low flash points in the PlateLoc Sealer. Such chemicals include reagents that are used in radioactive scintillation proximity assays (SPAs) and solvents, including alcohols.

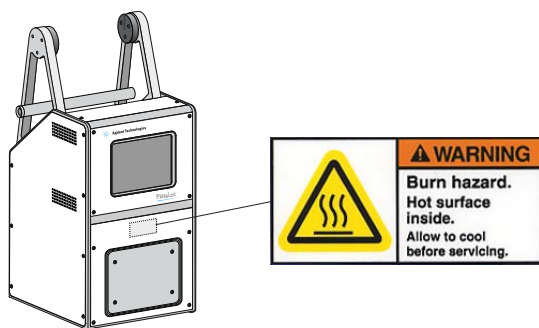
High-temperature hazard

WARNING

The hot surfaces in the PlateLoc Sealer can cause a burn injury. Do not touch the PlateLoc Sealer or pry open the door while it is in operation. Use care when accessing the PlateLoc Sealer interior after the device is warmed up. Do not reach into the PlateLoc Sealer when it is warmed up to a high temperature. Do not touch the hot plate with your bare hands.

WARNING

A freshly sealed microplate might still be hot from the sealing process. To prevent potential injury, use caution when removing a sealed microplate from the PlateLoc Sealer.



Moving-parts hazards

The PlateLoc Sealer contains moving parts that can cause injury. Under normal operating conditions, the PlateLoc Sealer is designed to protect you from the moving parts. The door sensor is designed so that the seal cycle cannot start unless the door is closed.

WARNING

Do not disable the door sensor or attempt to access the interior of the device through any other openings. Exposure to the moving parts, such as the heated metal plate (hot plate) or the seal-cutting blade can cause severe injuries.

Related information

For information about...

General safety guidelines

Emergency stops

See...

[Automation Solutions Products General Safety Guide](#)

["Stopping in an emergency" on page 5](#)

2 Introduction

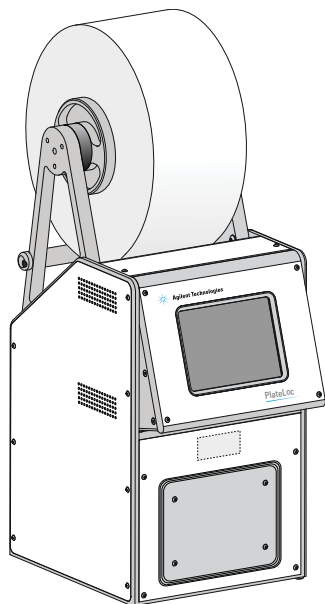
This chapter contains the following topics:

- [“About the PlateLoc Sealer” on page 8](#)
- [“Hardware overview” on page 9](#)
- [“Connection panel” on page 12](#)
- [“Labware considerations” on page 13](#)
- [“Inserts for microplate support” on page 16](#)
- [“Seal material” on page 18](#)
- [“Software overview” on page 19](#)
- [“Workflow for a standalone device” on page 21](#)
- [“Workflow for setting up an integrated device” on page 22](#)

About the PlateLoc Sealer

The PlateLoc Sealer applies a sealing material on top of microplates to seal individual wells. Sealing the wells protects the contents from evaporation, condensation, oxidation, and cross-contamination during transport or storage.

Figure PlateLoc Sealer (front view)



Standalone device or integrated in lab automation system

The PlateLoc Sealer can be used as a standalone device or in a robotic lab automation system.

- *Standalone device.* As a standalone device, you operate the PlateLoc Sealer using the built-in touchscreen. You do not need to connect the device to a computer.
Using the PlateLoc Sealer in the standalone mode enables you to manually load and seal one microplate at a time (a single seal cycle in one run).
- *Laboratory automation system.* As part of a lab automation system, the PlateLoc Sealer is a robot-accessible automated microplate sealer that is controlled by the lab automation software, such as the VWorks Automation Control software.
Integrated PlateLoc Sealer operation enables you to automate the loading and sealing of multiple microplates in one protocol run (multiple seal cycles in one run).

Gas-Purging PlateLoc

The Gas-Purging PlateLoc uses argon gas to displace air, containing moisture and oxygen, in the microplate immediately before the sealing begins. Because argon is inert, it does not react with the microplate contents. The microplate contents can be protected from hydration and oxidation for up to 24 hours.

Typically used for compound storage applications, the Gas-Purging PlateLoc is best for microplate contents that are sensitive to oxidation and moisture (for example, DMSO).

Note: For typical polystyrene and polypropylene microplates, the gas-purging effects can last up to 24 hours when the microplates are stored at room temperature. The effects can last longer if the microplates are stored at lower temperatures.

Related information

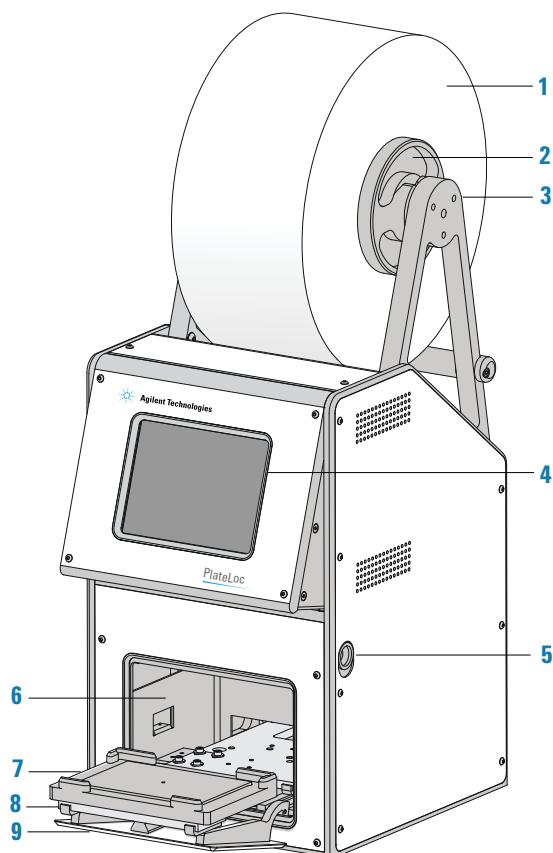
For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Hardware overview	"Hardware overview" on page 9

Hardware overview

Front features

The following figure shows the front of the PlateLoc Sealer. The table describes the components shown in the figure.

Figure PlateLoc Sealer components (front view)

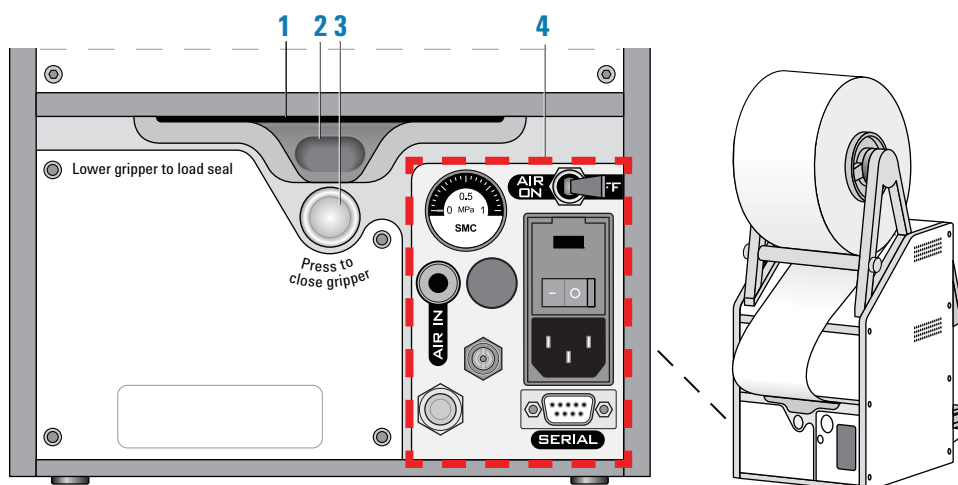


Item	Feature	Description
1	Roll of seal	The seal material. For details, see “Seal material” on page 18 .
2	Hubs	The structures (together with the axle, not shown) that hold the roll of seal and allow the roll to rotate.
3	Seal-roll supports	The structure on which you mount the hubs and axle.
4	Touchscreen	The interface that allows you to specify sealing parameters, start and stop the seal cycle, and monitor the seal cycle for standalone operation.
5	Screen-release lever	The control that unlocks the touchscreen so that you can tilt or stow the screen.
6	Sealing chamber	The area inside the device where microplates are sealed.
7	Plate stage	The removable metal platform on which microplates and microplate inserts are loaded.
8	Plate-stage support	The structure on which you load the plate stage. The plate-stage support extends when the door opens and retracts when the door closes.
9	Door (opened)	The movable structure that opens when the plate stage is extended and closes when the plate stage enters the chamber.

Rear features

The following figure and table describe the rear features of the PlateLoc Sealer.

Figure PlateLoc components (rear view)



Item	Name	Description
1	Seal entry slot	The narrow opening into which you insert the seal.
2	Open-gripper button	The oval button that you push downward when inserting the seal into the seal entry slot. Pushing the button downward opens the gripping mechanism that holds the seal in position.
3	Close-gripper button	The silver button that you press to close the seal-gripping mechanism.
4	Connection panel	The area where you connect the power, air tubing, argon tubing (gas-purging PlateLoc only), and computer. The panel also contains a gauge that allows you to verify air flow. For a detailed description, see "Connection panel" on page 12 .

Related information

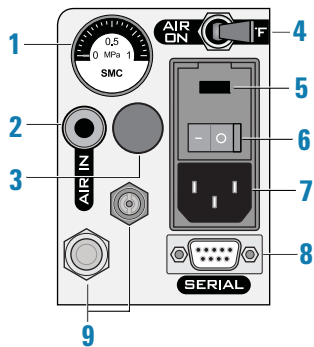
For information about...	See...
Connection panel details	"Connection panel" on page 12
Microplate requirements	"Labware considerations" on page 13
Inserts to support warped or flexible microplates	"Inserts for microplate support" on page 16
Seal	"Seal material" on page 18
Site requirements	"Laboratory requirements" on page 25
Workflow for starting up the device and sealing microplates	"Workflow for a standalone device" on page 21 "Workflow for setting up an integrated device" on page 22

Connection panel

Description

The following figure shows the PlateLoc connection panel. The table describes each component on the panel.

Figure PlateLoc connection panel (rear view)



Item	Name	Description
1	Air flow gauge	Indicates the regulated air pressure (MPa) inside the PlateLoc Sealer.
2	Air supply port	Connects the air line to a compressed-air source. The PlateLoc Sealer uses compressed air to move pneumatic components, such as opening and closing the door, and driving the hot plate down to the microplate surface.
3	Argon-input fitting	<i>Gas-Purging PlateLoc only.</i> Connects the argon tubing to the Gas-Purging PlateLoc. Argon is used to displace air in the microplate, thereby removing oxygen and moisture. <i>Note:</i> Argon starts to fill the sealing chamber automatically when a seal cycle starts. For safety reasons, the argon stops filling the sealing chamber automatically just before the seal is applied.
4	Air on/off switch	Turns on or off the air flow into the PlateLoc Sealer.
5	Fuse panel	Houses the AC inlet fuse.
6	Power switch	Turns on (I) and off (O) the PlateLoc Sealer power.
7	AC power entry	Connects the PlateLoc power cord to an AC outlet with a grounded circuit.
8	Serial port (DB-9 RS-232 9-pin)	Connects the serial cable from the controlling computer to the PlateLoc Sealer. Use this port when installing the PlateLoc Sealer in a lab automation system.

Item	Name	Description
9	Service ports	For use by Agilent personnel only.

Related information

For information about...	See...
Connecting the PlateLoc	"Connecting the power source" on page 33 "Connecting and disconnecting the air source" on page 34 "Setting up the computer (lab automation system only)" on page 39
Site requirements	"Laboratory requirements" on page 25
Hardware components	"Hardware overview" on page 9
Microplate requirements	"Labware considerations" on page 13
Workflow for starting up the device and sealing microplates	"Workflow for a standalone device" on page 21 "Workflow for setting up an integrated device" on page 22

Labware considerations

Acceptable microplates

The PlateLoc Sealer is designed for labware that comply with the standards ANSI/SLAS 1-2004 (R2012) through ANSI/SLAS 4-2004 (R2012).

How microplate features affect sealing parameters

The ideal sealing conditions vary based on factors such as the microplate material and design. You should run optimization tests to determine the best sealing parameters to use for each microplate type.

Microplate material

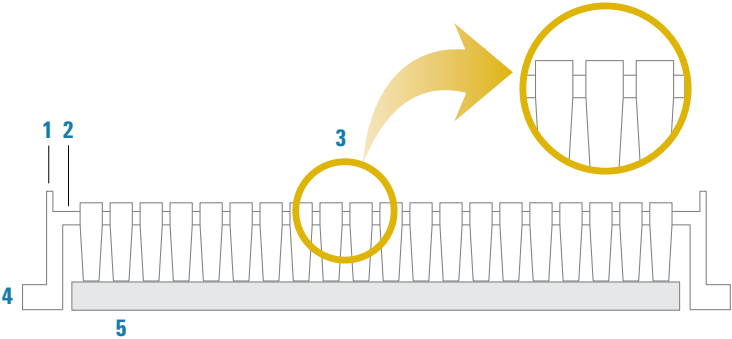
For the best sealing results:

- Use polypropylene microplates because they are the easiest to seal effectively and reliably.
- Avoid acrylic microplates because they are not compatible with thermal microplate sealing.

Microplate design

Microplate design features, such as thickness and geometry, effect the sealing conditions. The most compatible microplates have wells with raised chimneys, which have flat surfaces at the top, as the following figure shows. These features can minimize cross-contamination, reduce evaporation, and minimize condensation.

Figure Microplate design features (cutaway side view)



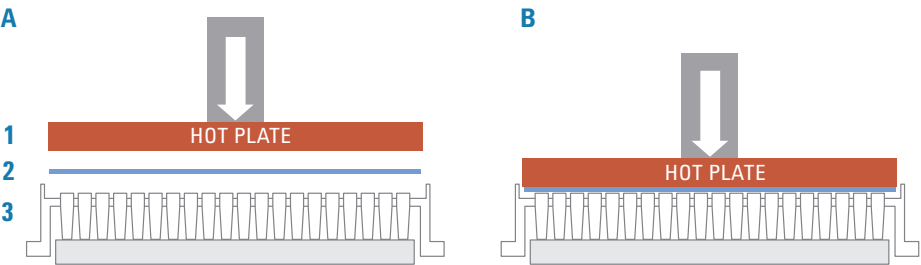
Item	Description.
1	Raised rim around perimeter of microplate
2	Microplate surface
3	Well chimneys that rise above the microplate surface
4	Microplate skirt
5	Insert that supports the microplate during the sealing process

The PlateLoc Sealer applies seals using pressure and heat. During the seal cycle, a heated metal plate (hot plate) inside the PlateLoc sealing chamber descends and presses the seal onto the microplate. The hot plate can sense and automatically adjust for variations in microplate height.

The following figure shows a cutaway side view of a seal being applied to a microplate:

- (A) The alignment of the hot plate, the seal, and the microplate before the seal is applied. Notice that the microplate has a raised rim around the perimeter that is higher than the well chimney height.
- (B) The hot plate must fit within the rimmed perimeter of the microplate so that the hot plate can make uniform contact with the seal and all sample wells simultaneously.

Figure Applying seal: (1) hot plate, (2) seal, and (3) microplate (cutaway side view)



Challenging microplates

Because of the material or design, the following microplates might cause poor seal results when used in the PlateLoc Sealer:

- Microplates that have non-binding coatings
- Flexible microplates that tend to bend during sealing
- Warped microplates or microplates that do not lie flat
- Microplates that lack raised chimneys or have molded branding or legends, such as the manufacturer's name or logo, close to the tops of the wells (close enough so that seal touches or covers the imprint)
- Microplates that have tooling marks or manufacturing aids, such as circular depressions (sometimes with branching) caused by ejection pins or part of the molding process

Note: Gaps or gutters may not only prevent binding of the seal, but may actually facilitate cross-contamination of liquid samples.

You should run some sealing tests to determine whether optimal sealing is possible with these microplates or if you should use different microplate types.

If warped microplates are a challenge, or if you experience non-uniformity in seal quality, you can use an insert to support the microplate.

Related information

For information about...	See...
Types of seal, sealing conditions, and compatible types of microplates	PlateLoc Thermal Microplate Sealer Consumables Selection Guide Go to http://www.agilent.com/en-us/products/automation-solutions/microplate-management-robotics/plateloc-thermal-microplate-sealer
Inserts to support warped or flexible microplates	"Inserts for microplate support" on page 16
Seal	"Seal material" on page 18
Optimization test guidelines	"Optimizing seal quality" on page 81
Site requirements	"Laboratory requirements" on page 25

Inserts for microplate support

What are inserts

Inserts are pads that support the bottoms of microplates to provide uniform seals. You use inserts to support microplates that tend to bend during a seal cycle.

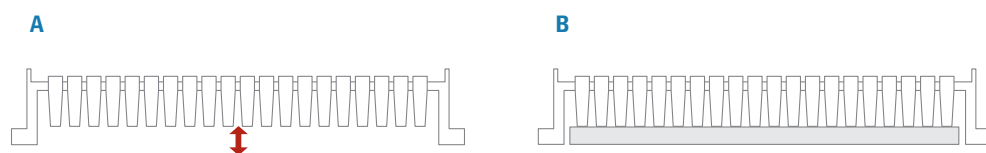
When to use an insert

During the seal cycle, the hot plate inside the sealing chamber descends and presses the seal onto the microplate. In a quality seal, the seal material is applied to the microplate uniformly. However, the following factors can cause uneven microplate sealing:

- Because of the material used, some microplates tend to bend in the high-temperature environment.
- In some microplate designs, the microplate skirt sits higher or lower than the microplate bottom, causing uneven sealing.

The following figure shows a side profile of a microplate.

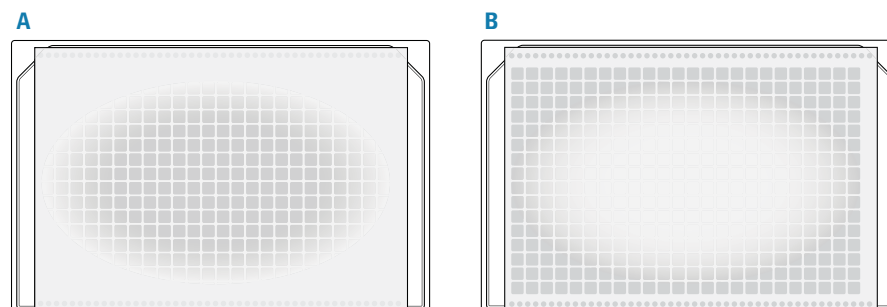
Figure Microplate (A) without insert and (B) with insert (cutaway side view)



In this example, the microplate skirt extends lower than the bottom of the wells. Depending on the microplate material, such designs can cause non-uniform sealing. When the hot plate presses down, the wells at the center of the microplate might bend upward (A) or downward (B). This type of microplate requires an insert (B) for support to provide uniform sealing of all the wells.

The following figure shows the top view of sealed microplates with non-uniform seals. Non-uniform seals can result when the center of the microplate bends upward (A) and downward (B) during the seal cycle.

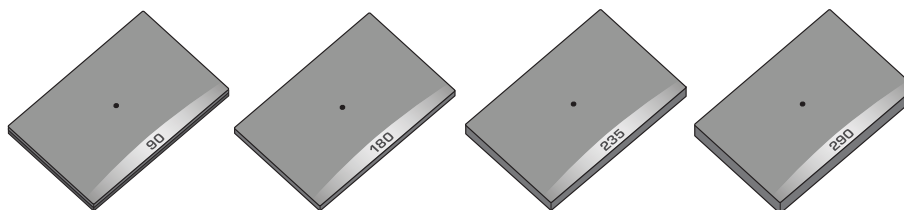
Figure Non-uniform microplate seals: (A) Center too high, (B) Center too low



Using inserts to support microplates

The following figure shows the standard inserts that are supplied with the PlateLoc Sealer. The table describes each insert.

Figure Standard inserts (90, 180, 235, and 290)



Insert	Description	Thickness	Height above plate stage support	Use with microplates that require...
90	Metal pad with rubber foam padding on the microplate-facing side	8.65 mm (0.340 in)	4 mm (0.2 in)	Flexible support
180	Metal pad	4.60 mm (0.180 in)	0 mm (0 in)	Non-flexible support under the wells
235	Metal pad	6.00 mm (0.235 in)	1.4 mm (0.055 in)	Non-flexible support under the wells
290	Metal pad	7.37 mm (0.290 in)	2.8 mm (0.11 in)	Non-flexible support under the wells

The type of insert you use depends on the microplate material and design. Agilent Technologies recommends that you run optimization tests to determine the best insert for the microplate you are using.

Related information

For information about...	See...
Microplate guidelines	“Labware considerations” on page 13
Seal	“Seal material” on page 18
Optimization test guidelines	“Optimizing seal quality” on page 81
Site requirements	“Laboratory requirements” on page 25

Seal material

Selecting seal material

To ensure optimal seal quality, Agilent Technologies recommends that you run optimization tests to determine the best sealing parameters to use for each microplate type and application.

CAUTION

Seals from a supplier other than Agilent Technologies might not seal properly in the PlateLoc Sealer and can damage the device. Use only Agilent seals with the PlateLoc Sealer.

Agilent Technologies offers a variety of seals with different properties, including:

- *Clear seals.* Allows you to see the contents of the microplate.
- *Aluminum seals.* Protects light-sensitive samples or compounds in the microplate.
- *Peelable seals.* Allows you to peel the seal off the microplate in a downstream task.
- *Non-pierceable seals.* Protects the microplate contents from accidental piercing.

The type of seal you can use depends on a number of factors, including microplate material, design, properties (for example, optical and physical properties), contents (samples, reagents, and so forth), application (for example, PCR, DNA sequencing, compound storage), and storage duration and conditions.

Related information

For information about...	See...
Types of seal, sealing conditions, and compatible types of microplates	PlateLoc Thermal Microplate Sealer Consumables Selection Guide Go to http://www.agilent.com/en-us/products/automation-solutions/microplate-management-robotics/plateloc-thermal-microplate-sealer
Microplate guidelines	"Labware considerations" on page 13
Inserts for microplate support	"Inserts for microplate support" on page 16
Optimization test guidelines	"Optimizing seal quality" on page 81
Site requirements	"Laboratory requirements" on page 25

Software overview

About this topic

This topic describes the software that you can use to set up and control the PlateLoc Sealer in a lab automation system.

Note: If you are using the PlateLoc Sealer as a standalone device, the lab automation software is not necessary.

Lab automation requirements

In a lab automation system, you can use a plate-loading robot to automate the sealing of multiple microplates. You use the automation control software to set up the communication between the system and the PlateLoc device, set up the sealing parameters, and control the automation.

You can use either the VWorks software or third-party automation software to operate the PlateLoc Sealer in protocol runs. For third-party automation software, you use the PlateLoc ActiveX control to permit the software to interface with the device.

VWorks software

The VWorks software enables you to:

- *Set up user accounts and privileges.* You can set up different user accounts to enforce access policies.
- *Define labware.* Labware definitions describe the labware you will use during protocol runs.
- *Create protocols.* Protocols determine the sequence of tasks you want to automate in a run. For example, you can use a protocol to seal 10 microplates in one protocol run.
- *Run, pause, monitor, and stop protocols.* You can start, pause, monitor, and stop a protocol run from the controlling computer.

PlateLoc Diagnostics

The PlateLoc Diagnostics software is a component that you access through the VWorks software or the PlateLoc ActiveX control. The PlateLoc Diagnostics software enables you to:

- Set up the PlateLoc Sealer for automated operation. The setup requires a device profile that specifies the:
 - Serial communication connection (COM port) with the controlling computer
 - Default sealing parameter values
- Seal individual microplates without running a protocol.
This is equivalent to running the device from the touchscreen.
- Check the odometer. The odometer indicates the number of sealing cycles the device has performed. You can refer to this value for preventive maintenance purposes.

PlateLoc ActiveX control

In an automation system that uses third-party automation control software, you use the PlateLoc ActiveX control to permit the software to interface with the PlateLoc Sealer.

Related information

For information about...	See...
Workflow for sealing a microplate on a standalone PlateLoc Sealer	PlateLoc Thermal Microplate Sealer Quick Start "Workflow for a standalone device" on page 21
Workflow for sealing multiple microplates in a protocol run	"Workflow for setting up an integrated device" on page 22
Setting up the VWorks software	VWorks Automation Control Setup Guide
Creating and running VWorks protocols	VWorks Automation Control User Guide
PlateLoc ActiveX control	PlateLoc Sealer ActiveX version 13.0 User Guide

Workflow for a standalone device

About this topic

This topic presents the basic steps for setting up and operating the PlateLoc Sealer as a standalone device.

Alternatively, see the [PlateLoc Thermal Microplate Sealer Quick Start](#).

Workflow to set up and operate the device

When optimizing the seal quality, repeat steps 7 through 9.

Step	Procedure	See...
1	Prepare the laboratory for the installation and install the PlateLoc Sealer.	"Installation workflow" on page 24
2	Turn on the PlateLoc Sealer.	"Turning on and off the power" on page 42
3	Turn on the air.	"Turning on and off the air" on page 43
4	<i>Gas-Purging PlateLoc only.</i> Turn on the argon.	"Turning on and turning off the argon (Gas-Purging PlateLoc only)" on page 45
5	Adjust the touchscreen.	"Tilting or stowing the touchscreen" on page 47 "Adjusting the touchscreen brightness" on page 49
6	Specify a Sleep Mode for idle times.	"Specifying a Sleep Mode" on page 50
7	Load the seal.	"Loading and unloading a roll of seal" on page 51
8	Load an insert and a microplate.	"Loading an insert and a microplate" on page 70
9	Set the sealing parameters.	"Setting the sealing parameters" on page 72
10	Start the seal cycle.	"Starting the seal cycle" on page 77

Related information

For information about...	See...
Microplates and seals	"Labware considerations" on page 13
Optimizing seal quality	"Optimizing seal quality" on page 81
Workflow for an integrated PlateLoc Sealer	"Workflow for setting up an integrated device" on page 22

Workflow for setting up an integrated device

About this topic

Use the following workflow to set up and operate the PlateLoc Sealer in a lab automation system.

Workflow

Step	Procedure	See...
1	Prepare the laboratory for installation and install the PlateLoc Sealer.	"Installation workflow" on page 24
2	Turn on the PlateLoc Sealer.	"Turning on and off the power" on page 42
3	Turn on the air.	"Turning on and off the air" on page 43
4	<i>Gas-Purging PlateLoc only.</i> Turn on the argon.	"Turning on and turning off the argon (Gas-Purging PlateLoc only)" on page 45
5	<i>Optional.</i> Adjust the touchscreen.	• "Tilting or stowing the touchscreen" on page 47 • "Adjusting the touchscreen brightness" on page 49
6	Specify a Sleep Mode for idle times.	"Specifying a Sleep Mode" on page 50
7	Load the seal.	"Loading and unloading a roll of seal" on page 51
8	Install the VWorks software, or integrate PlateLoc ActiveX control.	One of the following: • VWorks Automation Control Setup Guide • PlateLoc Sealer ActiveX version 13.0 User Guide
9	<i>VWorks software only.</i> Start the VWorks software and log in.	VWorks Automation Control User Guide
10	<i>VWorks software only.</i> Add the PlateLoc device to a device file.	"Creating and editing VWorks device files" on page 59
11	Open PlateLoc Diagnostics.	"Opening PlateLoc Diagnostics" on page 62
12	Create a PlateLoc profile and set the profile parameters.	"Creating and editing profiles" on page 64
13	Initialize the PlateLoc Sealer.	"Initializing the device" on page 67
14	Set the robot teachpoint at the PlateLoc Sealer.	Robot user documentation
15	Write and run protocols.	One of the following: • VWorks Automation Control User Guide • Automation software user documentation



3 Unpacking and installation

This chapter contains the following topics:

- [“Installation workflow” on page 24](#)
- [“Laboratory requirements” on page 25](#)
- [“Unpacking the PlateLoc Sealer” on page 30](#)
- [“Connecting the power source” on page 33](#)
- [“Connecting and disconnecting the air source” on page 34](#)
- [“Connecting and disconnecting the argon source” on page 36](#)
- [“Setting up the computer \(lab automation system only\)” on page 39](#)

Installation workflow

Workflow

The following table presents the workflow for unpacking and installing the PlateLoc Sealer.

Step	Procedure	See...
1	Prepare your lab for the installation.	"Laboratory requirements" on page 25
2	Unpack the PlateLoc Sealer.	"Unpacking the PlateLoc Sealer" on page 30
3	Connect the PlateLoc Sealer to the power source.	"Connecting the power source" on page 33
4	Connect the PlateLoc Sealer to the air source.	"Connecting and disconnecting the air source" on page 34
5	<i>Gas-Purging PlateLoc only.</i> Connect the PlateLoc to the argon source.	"Connecting and disconnecting the argon source" on page 36
6	<i>Lab automation systems only.</i> Connect the PlateLoc Sealer to the controlling computer.	"Setting up the computer (lab automation system only)" on page 39
7	<i>Lab automation systems only.</i> Install one of the following: - VWorks software - PlateLoc ActiveX control for third-party automation software	Software release notes

Related information

For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Hardware components	"Hardware overview" on page 9
Connection panel	"Connection panel" on page 12

Laboratory requirements

About this topic

This topic describes the site requirements for installing the PlateLoc Sealer.

Laboratory space requirements

When planning the laboratory space for the PlateLoc Sealer, ensure the following:

- Sufficient clearance is available around the PlateLoc Sealer so that you can reach the back of the device to turn off the power and air in an emergency.
- The PlateLoc Sealer is within 1.8 m (6 ft) of the electrical outlets.
- The PlateLoc Sealer is within 4.6 m (15 ft) of the air source.
- *Gas-Purging PlateLoc only.* The PlateLoc Sealer is within 4.6 m (15 ft) of the argon source.
- *Gas-Purging PlateLoc only.* The room is well ventilated and an oxygen monitor is nearby.

Lab automation system installation only. Check with the lab automation system manufacturer for installation requirements.

Laboratory table or bench

Ensure the following:

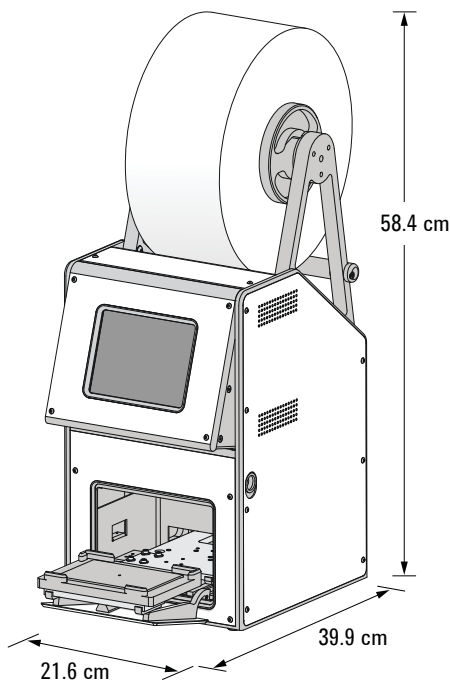
- Provide adequate table surface space for the PlateLoc Sealer.
- Make sure the table can support the weight of the PlateLoc Sealer.
- Ensure that the table surface is level.

PlateLoc dimensions

The weight and dimensions of the PlateLoc Sealer are as follows:

Dimension	Value
Weight	20.0 kg (45.0 lb)
Width	21.6 cm (8.5 in)
Height (with roll of seal)	58.4 cm (23.0 in)
Depth (with door open and roll of seal)	39.9 cm (15.7 in)

Figure PlateLoc Sealer dimensions with door open and roll of seal (front and side views)



Compressed air requirements

The PlateLoc Sealer requires the use of oil-free compressed air to move pneumatic components inside the device. The oil-free compressed air can be from the following sources:

- Centralized source (house)
- Portable pumps

CAUTION

Ensure that the air coming into the PlateLoc Sealer is properly filtered from moisture or aerosolized impurities. Significant moisture or impurities in the air line can adversely affect the performance and life of the PlateLoc Sealer. Using oil compressors can cause oil to leak into the PlateLoc Sealer and void your warranty.

CAUTION

Air pressure greater than 0.69 MPa (100 psi) can damage the PlateLoc Sealer. Ensure that the air source meets the requirements for pressure and flow rate.

IMPORTANT

The PlateLoc Sealer will not function properly if the air supply does not meet the specified flow rate (cfm) and pressure (psi).

To maintain the desired air supply in the device, the PlateLoc Sealer requires a source of air as follows:

Requirement	Value
Quality	Clean, dry, compressed
Flow rate	70.8 Lpm (2.5 cfm)
Pressure	0.62–0.69 MPa (90–100 psi)

Environmental requirements

The following table provides the PlateLoc environmental requirements.

Requirement	Value
Ambient temperature	4–40 °C (39–104 °F)
Humidity condition	10–90% RH, non-condensing
Maximum altitude	2000 m
Pollution degree	2
Installation category	II

The PlateLoc Sealer is for indoor use only.

Make sure that the PlateLoc Sealer is located away from the following:

- Heat and air conditioning ducts
- Direct sunlight

Electrical requirements

The PlateLoc electrical requirements are specific to each model. The following table provides the requirements for each model.

Requirement	Model	
Voltage	100 to 120 V~	200 to 240 V~
Frequency	50/60 Hz	50/60 Hz
Current (maximum)	4 A	2.5 A
Fuse	4 A, fast blow, 312 Series, 3 AG, 250 V	2.5 A, fast blow, 312 Series, 250 V

Mains supply voltage fluctuations are not to exceed $\pm 10\%$ of the nominal supply voltage. A combination of low input voltage and low ambient temperature can reduce the maximum sealing temperature achievable.

WARNING

To prevent potential personnel injury or death and equipment damage, always connect the PlateLoc Sealer to an AC circuit that is properly grounded.

Argon source requirements (Gas-Purging PlateLoc only)

The Gas-Purging PlateLoc typically uses argon to displace air (oxygen and moisture) in the microplate. The argon can be from a centralized source (house) or from a cylinder.

To maintain the desired argon supply in the device, make sure the argon meets the following requirements.

Requirement	Value
Quality	99.9% pure, welding grade, containing up to 1 ppb water <i>Note: The water content is more important than the gas grade.</i>
Pressure	0.28 MPa (40 psi)

WARNING

Inert gases such as nitrogen and argon are odorless, colorless, and nontoxic gases that can cause rapid suffocation by displacing air. Use the inert gas only in a well-ventilated lab area. Turn off the inert gas sources when the product is not in use. Install an oxygen monitor nearby to prevent accidental suffocation.

Computer requirements

If you are installing the PlateLoc Sealer in a lab automation system, you must connect the device to the controlling computer. The computer requirements depend on the lab automation software you are using:

- For VWorks software computer requirements, see the VWorks software release notes or the VWorks Knowledge Base at www.agilent.com/chem/askb.
- For third-party automation software requirements, see the user documentation supplied with the product.

Operating supplies and accessories

For optimal sealing results, the PlateLoc Sealer requires:

- Compatible microplates. See “[Labware considerations](#)” on page 13.
- Microplate inserts, if necessary, depending on the microplate type. See “[Inserts for microplate support](#)” on page 16.
- Appropriate seal material. See “[Seal material](#)” on page 18.

Related information

For information about...	See...
Hardware components	“Hardware overview” on page 9
Connection panel description	“Connection panel” on page 12

Unpacking the PlateLoc Sealer

Before you start

WARNING

The PlateLoc Sealer weighs approximately 20 kg (45 lb). Attempting to move the device without assistance could cause personal injury. Request assistance and use proper lifting techniques when lifting the device.

CAUTION

Packing the PlateLoc Sealer using other materials might damage the device and void your warranty. Save the packing materials and shipping container in case you are required to move or ship the PlateLoc Sealer.

Unpacking the PlateLoc Sealer from its shipping container

The PlateLoc Sealer and its components are shipped in the following containers:

- PlateLoc device shipping box
- Seal roll shipping box

The country-appropriate power cord, pneumatics kit, and serial cable are shipped separately. The air tubing and fittings are included in the pneumatics kit. Depending on the configuration of your air supply system, one or more of the provided air fittings may be required. If your air system has a different configuration, you must supply your own fittings.

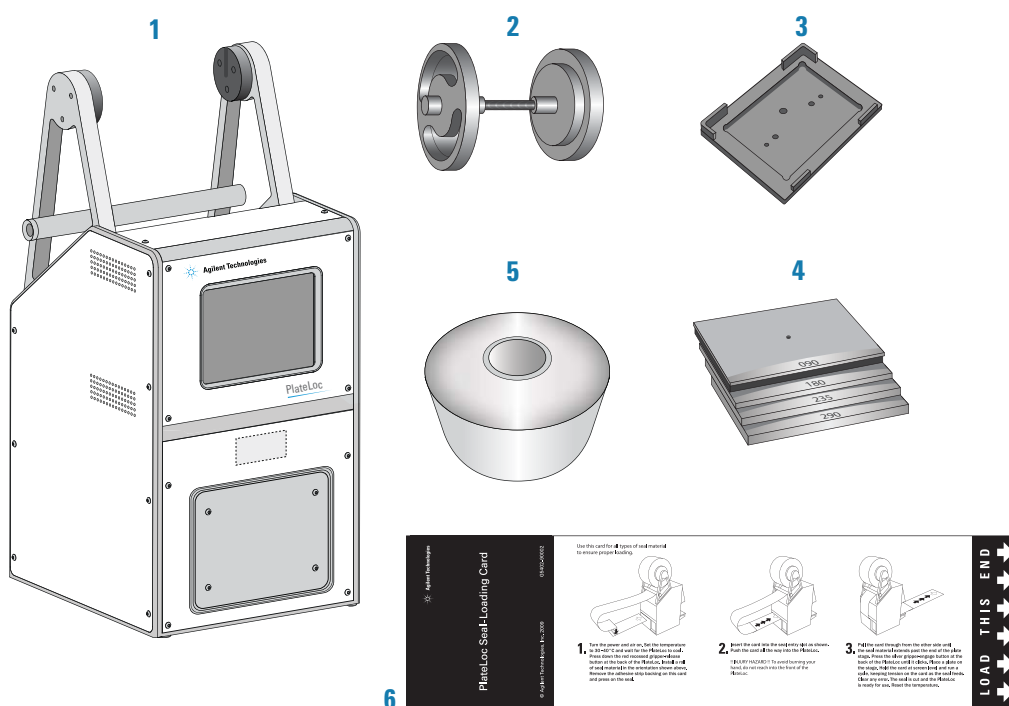
To unpack the PlateLoc Sealer and the roll of seal:

- 1 Open the top of the PlateLoc shipping box.
- 2 Remove the top inner box and set it aside.
- 3 Carefully lift the PlateLoc Sealer out of the shipping box. See the following figure, [1](#).
- 4 Remove the packing foam on the left and right sides of the device.
- 5 Remove the PlateLoc Sealer from the plastic bag, and set it carefully on the lab bench where you want to install the device.

Note: A small block of foam is packed inside the PlateLoc Sealer. You will remove this foam block after you install the device and turn on the air.

- 6 Open the inner box and remove the components:
 - a Important Documents envelope
 - b Thin layer of packing foam
 - c Hub and axle (figure, [2](#)), plate stage (figure, [3](#)), and plate inserts (figure, [4](#))
- 7 Open the separate shipping box and remove the roll of seal (figure, [5](#)) and seal-loading card (figure, [6](#)). Remove the seal from the plastic bag.

Figure Components in the PlateLoc and seal roll shipping boxes



Item	Name	Description
1	PlateLoc Sealer	The unpacked PlateLoc device.
2	Hubs and axle	The mechanism that holds the roll of seal and supplies the seal for the PlateLoc Sealer.
3	Plate stage	The removable plate stage that sits on the plate stage support in the PlateLoc Sealer.
4	Inserts	The pads that support the bottoms of microplates to provide uniform seals.
5	Roll of seal	The plate sealing material.
6	Seal-loading card	The card that you use to insert the seal in the loading slot when loading a new roll of seal.

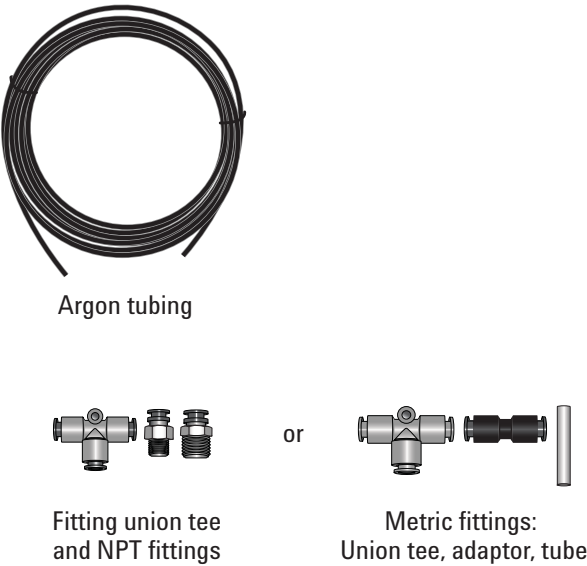
Inspecting the contents

After you unpack the PlateLoc Sealer and seal, ensure that you have the items in the preceding figure. Also, ensure that you have the country-appropriate power cord, pneumatics kit, and serial cable.

Additional components for the Gas-Purging PlateLoc

If you have the Gas-Purging PlateLoc, ensure that you have the additional items in the following figure.

Figure Additional items for the Gas-Purging PlateLoc



Missing or damaged items

Inspect the items to make sure you have everything listed. If any of the items are missing or defective on arrival, contact the Agilent Automation Solutions Business Center as soon as possible. For your region’s contact information, see: <https://www.agilent.com/en/contact-us/page>

Related information

For information about...	See...
Installing the PlateLoc	“Installation workflow” on page 24
Safety guidelines	“Safety guidelines” on page 1
Hardware components	“Hardware overview” on page 9
Connection panel description	“Connection panel” on page 12

Connecting the power source

Before you start

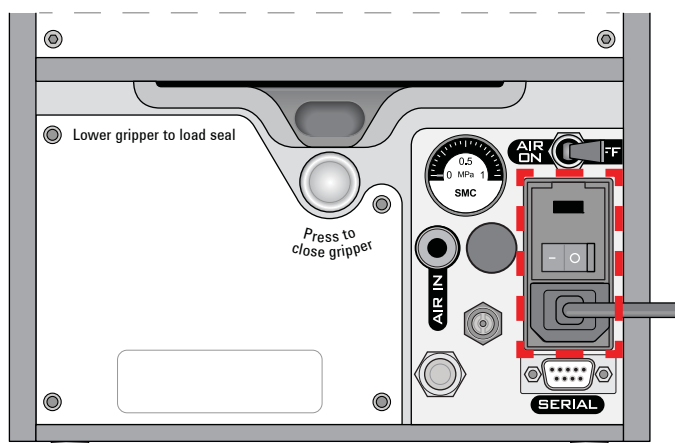
Ensure the following:

- The voltage supplied to the PlateLoc Sealer meets the specifications. See [“Electrical requirements” on page 28](#).
- The PlateLoc Sealer power switch is set to **off** (**0**).
- You have the supplied country-specific power cord.

Procedure

To connect the power cord:

- 1 Connect one end of the power cord to the AC power entry on the back of the PlateLoc Sealer.
- 2 Connect the other end of the power cord to an AC outlet with a grounded circuit.



Related information

For information about...	See...
Installing the PlateLoc	“Installation workflow” on page 24
Safety guidelines	“Safety guidelines” on page 1
Connecting the air source	“Connecting and disconnecting the air source” on page 34
Connecting to the computer	“Setting up the computer (lab automation system only)” on page 39

Connecting and disconnecting the air source

About this topic

Compressed air is used to move pneumatic components inside the PlateLoc Sealer. This topic explains how to connect the PlateLoc Thermal Microplate Sealer to the air source and check the connections for leaks before use.

Before you start

WARNING

Working with open, charged air lines can result in injury. Turn off the compressed air line when disconnecting or reconnecting devices that use compressed air. Contact your facilities department or Agilent Automation Solutions Technical Support with questions about setting up the air line.

CAUTION

Ensure that the air coming into the PlateLoc Sealer is properly filtered from moisture or aerosolized impurities. Significant moisture or impurities in the air line can adversely affect the performance and life of the PlateLoc Sealer. Using oil compressors can cause oil to leak into the PlateLoc Sealer and void your warranty.

Ensure the following:

- The air supplied to the PlateLoc Sealer meets the specifications. See ["Compressed air requirements" on page 27](#).
- You have the pneumatics kit (supplied). The air tubing and fittings are included in the pneumatics kit. Depending on the configuration of your air supply system, one or more of the provided air fittings may be required.

Note: If your air system has a different configuration, you must supply your own fittings.

Connecting the air source

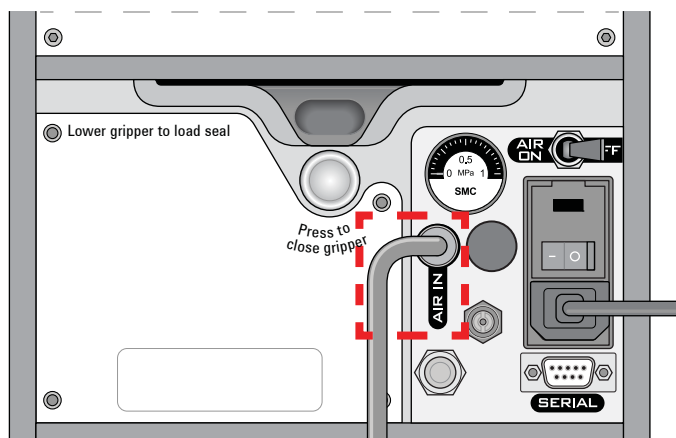
To connect the PlateLoc Sealer to your air source:

- 1 Turn off the air at the source (house, cylinder, or pump).
- 2 Attach the following adapter fittings to the air source connection if necessary:
 - *NPT fitting.* If your air source uses a threaded connection, attach the supplied 1/4-inch or 1/8-in NPT fitting to the connection. The NPT fitting is threaded on one end and has a quick-release fitting on the other end.
 - *Metric fittings adapter.* If your lab requires metric fittings at the air source, attach the supplied metric adapter fitting to the air source connection. The metric adapter fitting has a quick-release fitting on one end.
- 3 Connect the air tubing as follows:
 - a Connect one length of tubing from the air source (house, cylinder, or pump) to an in-line toggle switch (pneumatics kit).
 - b Connect a second length of tubing from the in-line toggle switch to the quick-release fitting at the air-input (AIR IN) port on the back of the PlateLoc Sealer.

Note: Alternatively, you can connect one length of tubing directly from the air source to the quick-release fitting at the AIR IN port on the back of the PlateLoc Sealer. The optional in-line toggle switch can help release the air pressure in the air line when you turn off the air supply to the PlateLoc Sealer.

The following figure shows the air tubing connection on the back of the PlateLoc Sealer.

Figure PlateLoc AIR IN port (rear view)



Checking the air connections

To check the air connections:

- 1 With the air source turned off, gently tug the air tubing at each connection. If you feel resistance at the connection, the tubing has been properly installed.
- 2 Turn on the air source.
- 3 Listen near each connection for hissing sounds that might indicate a leak. If you hear hissing sounds, turn off the air at the source and on the back of the PlateLoc Sealer, check and tighten the connections, and then turn on the air again. If the problem persists, contact your facilities department or Agilent Automation Solutions Technical Support.

Disconnecting the air source

CAUTION

Pulling the tubing out of the orange quick-release fitting can damage the fitting. To disconnect the air tubing, ensure that you use the following procedure.

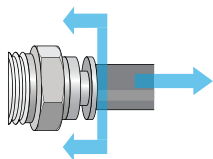
To disconnect the air tubing from the PlateLoc Sealer:

- 1 Turn off the air at the source (house, cylinder, or pump).
- 2 Turn off the air at in-line toggle switch to relieve the air pressure in the line.
- 3 Turn off the air on the back of the PlateLoc Sealer.
- 4 Push and hold the locking collar against the fitting, and then gently pull the air tubing out.

3 Unpacking and installation

Connecting and disconnecting the argon source

Figure Close-up view of the quick-release fitting



Note: Alternatively, you can use the SMC Pneumatics tool (TG-2) to aid in this task. See the manufacturer's documentation for use instructions. Contact your local SMC parts supplier for ordering details.

Related information

For information about...	See...
Installing the PlateLoc Sealer	"Installation workflow" on page 24
Safety guidelines	"Safety guidelines" on page 1
Connecting the argon source	"Connecting and disconnecting the argon source" on page 36

Connecting and disconnecting the argon source

About this topic

Read this topic only if you have a Gas-Purging PlateLoc. This topic explains how to connect the Gas-Purging PlateLoc to the argon source.

Before you start

WARNING

Inert gases such as nitrogen and argon are odorless, colorless, and nontoxic and can cause rapid suffocation by displacing air. Use the inert gas only in a well-ventilated lab area. Turn off the inert gas sources when the product is not in use. Install an oxygen monitor nearby to prevent accidental suffocation.

Ensure that the argon supplied to the Gas-Purging PlateLoc meets the specifications. See ["Argon source requirements \(Gas-Purging PlateLoc only\)" on page 28](#).

Make sure you have the following:

- Argon tubing (supplied)
- NPT or metric adapter fitting (supplied)

Connecting the argon source

To connect the Gas-Purging PlateLoc to your argon source:

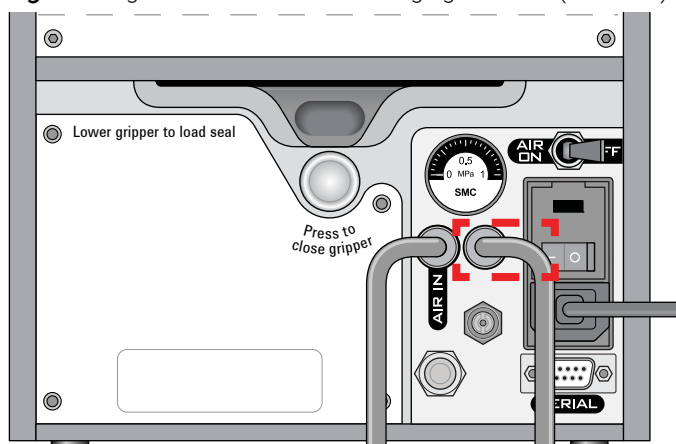
- 1 Turn off the argon source (house or cylinder).
- 2 Attach the following adapter fittings to the argon source if necessary:

- *NPT fitting.* If your argon source uses a threaded connection, attach the supplied 1/4-inch or 1/8-in NPT fitting to the connection. The NPT fitting is threaded on one end and has a quick-release fitting on the other end.
 - *Metric fittings adapter.* If your lab requires metric fittings at the argon source, attach the supplied metric adapter fitting to the argon source connection. The metric adapter fitting has a quick-release fitting on one end.
- 3 Connect one end of an argon tubing to the argon source, and then connect the free end of that tubing to the quick-release fitting at the argon-input port.
- To connect the tubing, push the end of the tubing into the quick disconnect fitting at the argon source and at the back of the Gas-Purging PlateLoc.

CAUTION

Do not connect the argon tubing to the air-input (AIR IN) port. Doing so can cause errors when you operate the PlateLoc.

Figure Argon connection on Gas-Purging PlateLoc (rear view)



Checking the argon connections

WARNING

To prevent accidental suffocation, ensure that the oxygen monitor is turned on before you turn on the argon source.

To check the argon connection:

- 1 With the PlateLoc Sealer turned off, gently tug the argon tubing at each connection. If you feel resistance at the connection, the tubing has been properly installed.
- 2 Turn on the argon source.
- 3 Listen near each connection for hissing sounds that might indicate a leak. If you hear hissing sounds, turn off the argon at the source and on the back of the PlateLoc, check and tighten the connections, and then turn on the argon again. If the problem persists, contact your facilities department or Agilent Automation Solutions Technical Support.

Disconnecting the argon source

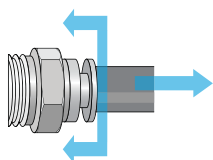
CAUTION

Pulling the tubing out of the orange quick-release fitting can damage the fitting. To disconnect the tubing, ensure that you use the following procedure.

To disconnect the argon tubing from the Gas-Purging PlateLoc:

- 1 Turn off the argon at the source (house or cylinder).
- 2 Push and hold the locking collar against the fitting, and then gently pull the argon tubing out.

Figure Quick-disconnect fitting



Note: Alternatively, you can use the SMC Pneumatics tool (TG-2) to aid in this task. See the manufacturer's documentation for use instructions. Contact your local SMC parts supplier for ordering details.

Related information

For information about...	See...
Installing the PlateLoc Sealer	"Installation workflow" on page 24
Safety guidelines	"Safety guidelines" on page 1
Connecting the air source	"Connecting and disconnecting the air source" on page 34

Setting up the computer (lab automation system only)

About this topic

Read this topic if you are integrating a PlateLoc Sealer in a lab automation system.

Note: To operate the PlateLoc Sealer as a standalone device, you can use the touchscreen. A computer is not required.

Before you start

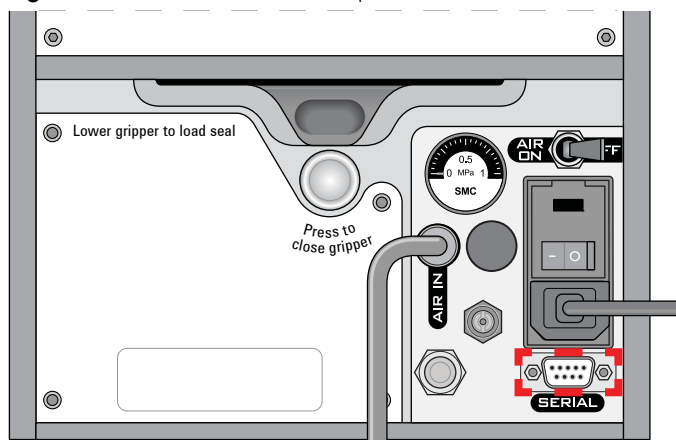
Make sure you have the serial cable.

Connecting to the controlling computer

To connect the PlateLoc Sealer to the controlling computer:

- 1 Turn off the controlling computer.
- 2 Connect one end of the serial communications cable to a serial communications port on the controlling computer.
Make a note of the COM port number. You will provide the number when creating a device profile in the diagnostics software.
Note: You can use the Microsoft Windows Device Manager to determine the COM port number. For instructions, see the Microsoft Windows documentation.
- 3 Connect the free end of the serial cable to the back of the PlateLoc Sealer.

Figure Serial connector on rear panel



About installing the VWorks software

If you are integrating the PlateLoc Sealer in a lab automation system that uses VWorks Automation Control, the software must be installed on the controlling computer. The VWorks software includes PlateLoc Diagnostics, which enables you to create device profiles and control the device for diagnostic purposes.

For VWorks installation instructions, see the VWorks software release notes.

3 Unpacking and installation

Setting up the computer (lab automation system only)

IMPORTANT

Do not install the VWorks software if you are planning to use the PlateLoc ActiveX controls to interface with the PlateLoc Sealer. The PlateLoc ActiveX controls can conflict with the PlateLoc plugin.

About the PlateLoc ActiveX in a third-party lab automation system

In an automation system that uses third-party automation control software, you use the PlateLoc ActiveX controls to permit the software to interface with the PlateLoc Sealer.

To install the PlateLoc ActiveX software:

- 1 Insert the provided CD into the controlling computer CDROM drive.
- 2 In the CD folder, double-click setup.exe.
- 3 Follow the instructions in the installation wizard window. Be sure to select the Complete setup option.

Related information

For information about...	See...
About lab automation software	"Software overview" on page 19
Computer requirements	VWorks release notes
Using ActiveX controls to interface with the PlateLoc	PlateLoc Sealer ActiveX version 13.0 User Guide

4 Getting started

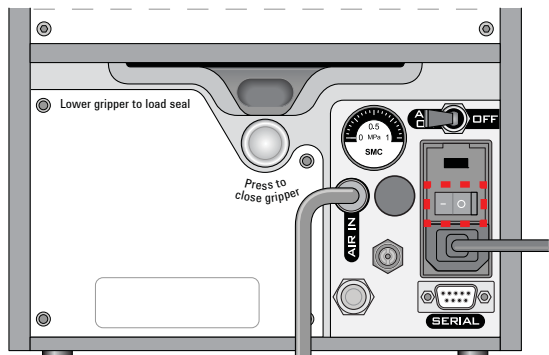
This chapter contains the following topics:

- [“Turning on and off the power” on page 42](#)
- [“Turning on and off the air” on page 43](#)
- [“Turning on and turning off the argon \(Gas-Purging Plateloc only\)” on page 45](#)
- [“Tilting or stowing the touchscreen” on page 47](#)
- [“Adjusting the touchscreen brightness” on page 49](#)
- [“Specifying a Sleep Mode” on page 50](#)
- [“Loading and unloading a roll of seal” on page 51](#)

Turning on and off the power

Turning on the PlateLoc Sealer

Figure PlateLoc Sealer on/off switch (rear view)



To turn on the PlateLoc Sealer:
Press the on/off switch to the on position (I).
If you have not yet turned on the air, the touchscreen displays the Insufficient Air Pressure error message.

Turning off the PlateLoc Sealer

To turn off the PlateLoc Sealer:
Press the on/off switch to the off position (o). The touchscreen turns off.

Related information

For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Site requirements	"Laboratory requirements" on page 25
Turning on and off the air	"Turning on and off the air" on page 43

Turning on and off the air

Before you turn on the air

Ensure the following:

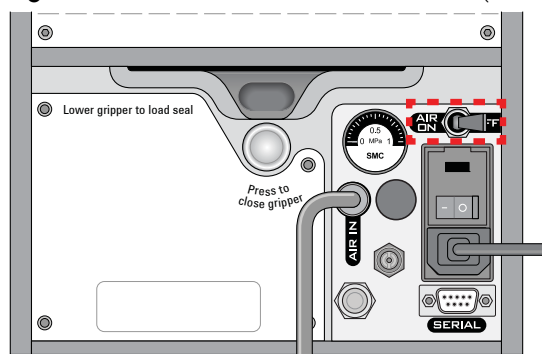
- The air is turned on at the source (house, cylinder, or pump) and the air pressure and flow rate meet the PlateLoc requirements.
- The PlateLoc Sealer is turned on.

Turning on the air

To turn on the air:

Push the **AIR ON/OFF** switch to the **ON** position.

Figure PlateLoc Sealer AIR ON/OFF switch (rear view)

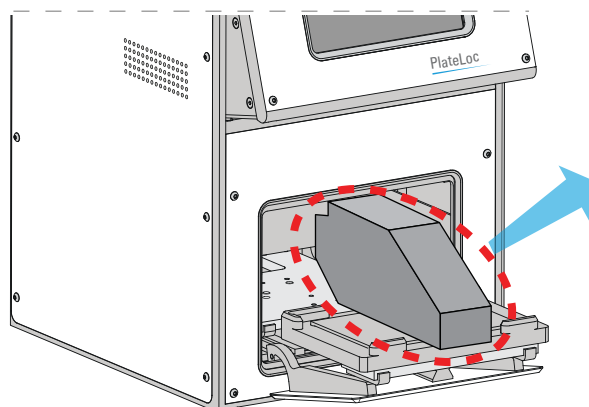


When you turn on the air, the PlateLoc Sealer door opens. The door remains open while the device is in idle mode, until you load a microplate.

CAUTION

Closing the PlateLoc door while the device is in idle mode will shorten the life of the PlateLoc Sealer. Leave the PlateLoc door open while the device is in idle mode.

Note: If this is the first time you are turning on the air, you must remove the packing foam inside the sealing chamber before you can use the device.



4 Getting started

Turning on and off the air

IMPORTANT

Save the packing foam in case you need to move or ship the PlateLoc Sealer. The packing foam is designed to protect the device. Packing the PlateLoc Sealer using other materials can damage the device and void your warranty.

Checking for air flow

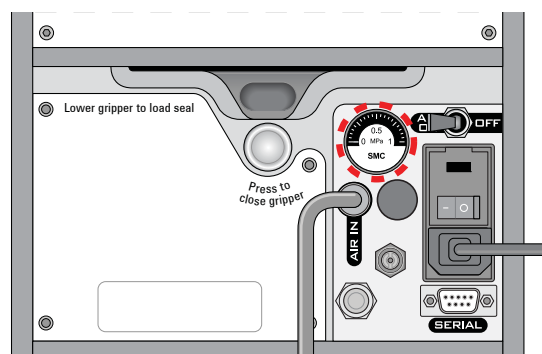
To check that air is flowing into the PlateLoc Sealer:

Check the pressure gauge on the back of the PlateLoc Sealer. If air is flowing into the device, the gauge should show a non-zero pressure value.

If the gauge shows 0 psi, check the air tubing connections and the connections at the source (house, cylinder, or pump).

IMPORTANT

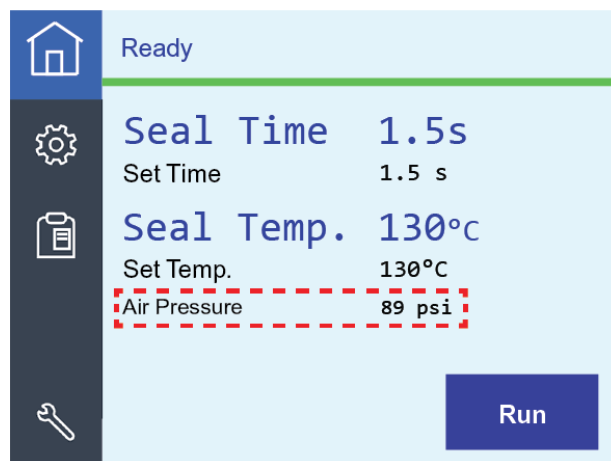
The pressure reading on the back of the PlateLoc Sealer might be different from the value shown on the touchscreen. The pressure gauge on the back of the PlateLoc Sealer should be used to determine the presence of air flow only. To check the air pressure inside of the device, view the air pressure information displayed on the touchscreen.



Checking the internal air pressure

To check the internal air pressure:

On the touchscreen **Home** page, locate the **Air Pressure** readout. The regulated air pressure should be approximately 0.599–0.62 MPa (87–90 psi).



Turning off the air

To turn off the air:

Push the **AIR ON/OFF** switch to the **OFF** position.

Related information

For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Site requirements	"Laboratory requirements" on page 25
Turning on and turning off the power	"Turning on and off the power" on page 42

Turning on and turning off the argon (Gas-Purging PlateLoc only)

About this topic

Read this topic only if you have the Gas-Purging PlateLoc.

Before turning on the argon

WARNING

Inert gases such as nitrogen and argon are odorless, colorless, and nontoxic and can cause rapid suffocation by displacing air. Use the inert gas only in a well-ventilated lab area. Turn off the inert gas sources when the product is not in use.

Make sure that the:

- Gas-Purging PlateLoc is installed properly.
- The oxygen monitor is turned on.
- The Gas-Purging PlateLoc is turned on.
- The argon is turned on at the source (house or cylinder) and the argon pressure meets the Gas-Purging PlateLoc requirements.

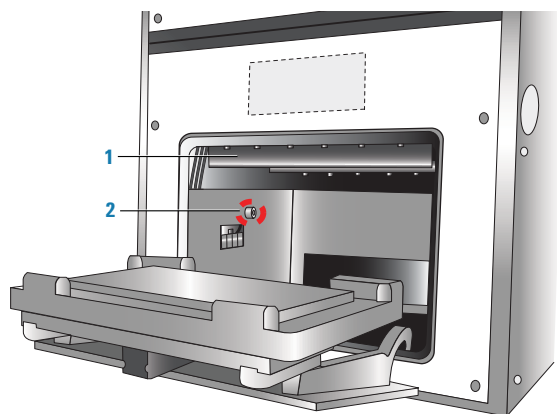
Turning on the argon

The Gas-Purging PlateLoc automatically turns on the argon inside the device when you start the seal cycle. The argon flows into the chamber from three areas, as the following figure shows.

4 Getting started

Turning on and turning off the argon (Gas-Purging PlateLoc only)

Figure Areas where argon flows into the sealing chamber



Item	Description
1	Argon output panel at the top of the doorway. Argon flows out from a row of ports across the bottom of this panel, producing a curtain of gas that passes across the microplate as it enters the sealing chamber
2	Argon output port on the interior left wall and right wall (not shown) of the sealing chamber. Argon flows into the sealing chamber from these ports before the seal is applied.

Checking for argon flow

You can check for argon flow using a test microplate, such as the OxoPlate (Innovative Instruments, Inc., www.3i-usa.com/product_oxoplate.htm) or equivalent. Test microplates can indicate the amount of oxygen displaced. For instructions, see the manufacturer's user documentation.

Checking the internal argon pressure

You do not need to check the internal argon pressure. Make sure the argon pressure from your lab is 0.28 MPa (40 psi).

Turning off the argon

For safety reasons, the Gas-Purging PlateLoc automatically turns off the argon inside the device immediately before the seal is applied.

Agilent Technologies recommends that you turn off the argon at the source (house or cylinder) when the Gas-Purging PlateLoc is not in use.

Related information

For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Site requirements	"Laboratory requirements" on page 25
Connecting the argon source	"Connecting and disconnecting the argon source" on page 36

Tilting or stowing the touchscreen

About this topic

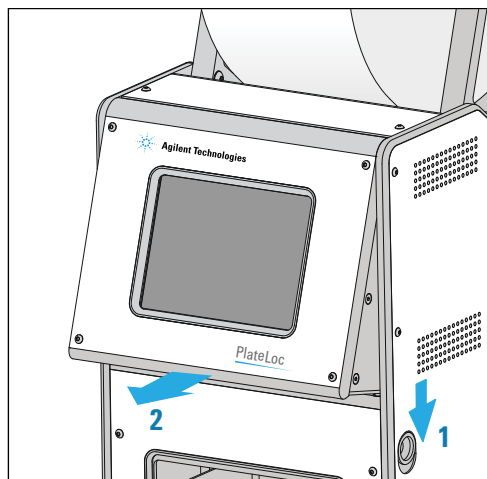
This topic explains how to tilt or stow the touchscreen on the front of the PlateLoc Sealer.

Tilting the touchscreen

You can tilt the touchscreen to better view the contents on the screen.

To tilt the touchscreen:

- 1 On the right side of the PlateLoc Sealer, push down the screen-release lever (1), as the following figure shows.
- 2 Pull out the touchscreen (2) from the bottom until the screen release clicks.



Stowing the touchscreen

CAUTION

In a lab automation system, the robot can collide with the tilted touchscreen on the PlateLoc Sealer, resulting in equipment damage. Keep the touchscreen stowed in a lab automation system, unless you are using it to set parameters or check status.

You can stow the screen so that it is flush against the front of the PlateLoc Sealer. You might want to stow the screen when the PlateLoc Sealer is not in use, to prevent a lab automation robot from colliding into the touchscreen, or when moving or shipping the device.

To stow the touchscreen:

- 1 On the right side of the PlateLoc Sealer, push down the screen-release lever (1), as the preceding figure shows.
- 2 Push the bottom of the screen into the device until the screen release clicks. The touchscreen is in its stowed position.

Related information

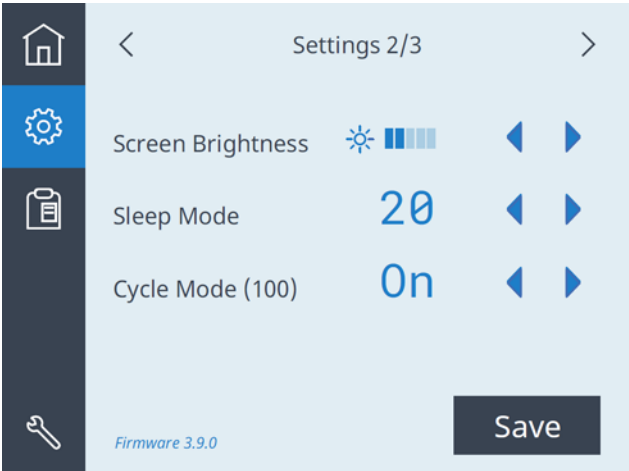
For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Hardware components	"Hardware overview" on page 9
Adjusting the contrast of the touchscreen	"Adjusting the touchscreen brightness" on page 49

Adjusting the touchscreen brightness

Procedure

To adjust the touchscreen brightness:

- 1
- Make sure the PlateLoc Sealer is turned on.
- 2
- On the touchscreen, press  to display the Settings pages, and then press the right arrow (>) to go to Settings page 2.



- 3
- Next to **Screen Brightness**, press  to decrease or  to increase the brightness.
- 4
- Press **Save** to save the new setting.

Related information

For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Hardware components	"Hardware overview" on page 9
Connection panel	"Connection panel" on page 12

Specifying a Sleep Mode

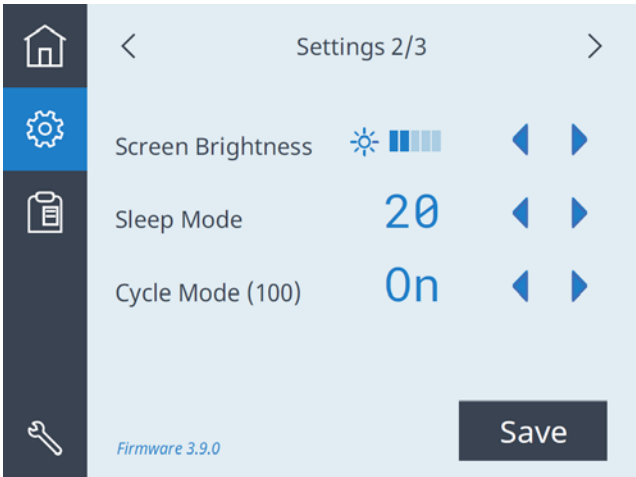
About Sleep Mode

The Sleep Mode specifies a period of idle time, after which the PlateLoc Sealer will automatically cool down. Ensure that you use the Sleep Mode when the device will be idle to help preserve the lifetime of the PlateLoc hotplate.

Procedure

To specify the Sleep Mode setting:

- 1 On the touchscreen, press  to display the Settings pages, and then press the right arrow (>) to go to Settings page 2.



- 2 Next to **Sleep Mode**, press  or  to select one of the following:
- 20 (minutes)
 - 60 (minutes)
 - 300 (minutes)
 - Off. Turns off the Sleep Mode.
- 3 Press **Save** to save the new setting.

Related information

For information about...	See...
Turning on or off the power	"Turning on and off the power" on page 42
Stopping a seal cycle	"Stopping a seal cycle in progress" on page 79
Connection panel	"Connection panel" on page 12

Loading and unloading a roll of seal

Before you start

CAUTION

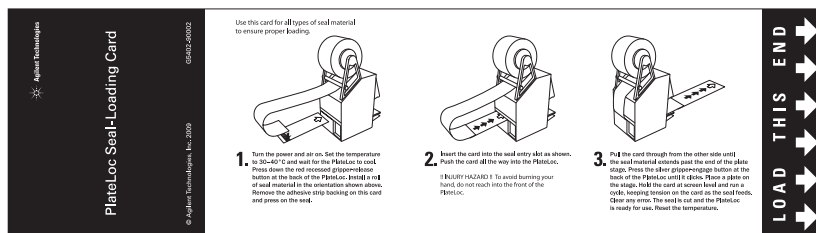
Seals from a supplier other than Agilent Technologies might not seal properly in the PlateLoc Sealer and can damage the device. Use only Agilent seals with the PlateLoc Sealer.

IMPORTANT

The PlateLoc Sealer will not seal microplates properly if the seal is wrinkled or torn.

Ensure that you have the following:

- Appropriate seal for your application. For guidance, see the [PlateLoc Thermal Microplate Sealer Consumables Selection Guide](#).
- The supplied seal-loading card.

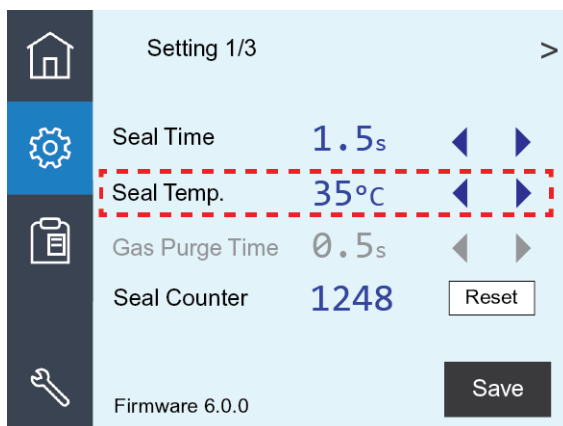


Loading the seal

To warm up or cool down the PlateLoc Sealer:

- 1 On the touchscreen, press  to display the Settings pages.
- 2 Set the **Seal Temp** to a value from 30 to 40 °C.

Note: Press  or  to adjust the value down or up in 0.5 °C increments.



- 3 Press **Save** to save the new Seal Temp value.

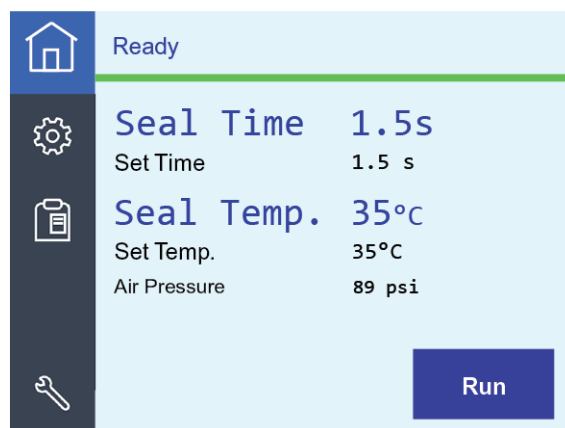
4 Getting started

Loading and unloading a roll of seal

- 4 Press  to return to the Home page. A status message appears at the top of the page, indicating that the PlateLoc Sealer is warming up or cooling down to the new set temperature.

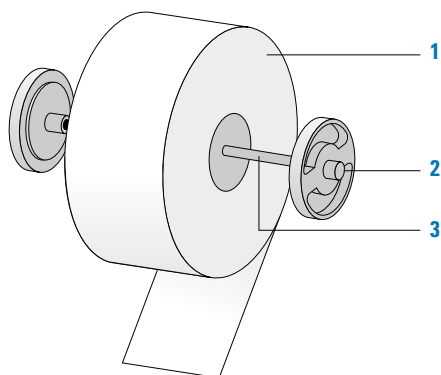


- 5 Wait for the PlateLoc Sealer to warm up or cool down so that the Seal Temp is within 30 to 40 °C as displayed on the Home page.



To assemble a roll of seal on the axle and hubs:

- 1 Remove the seal roll (1), seal-roll hubs (2), and axle (3) from their packaging. See the following figure.
- 2 Screw one of the hubs onto the axle.
- 3 Place the axle through the hole at the center of the seal roll. Make sure the hub fits snugly against the roll.
- 4 Screw the second hub onto the axle so that the roll is firmly secured between both hubs.



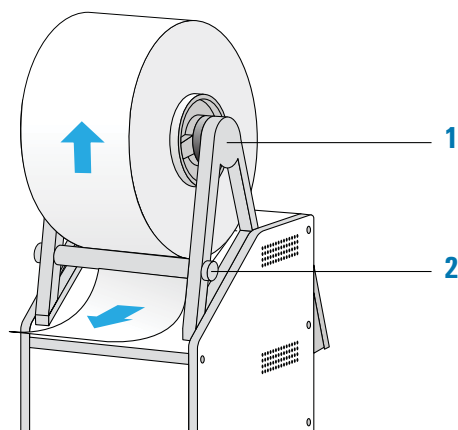
- 5 Using scissors, cut off any wrinkled or torn material from the end of the seal so that the end of the seal has a clean, straight edge.

CAUTION

The PlateLoc Sealer will not seal microplates properly if the seal is wrinkled or torn.

To mount the seal roll on the seal-roll supports:

- 1 Orient the roll, and set the assembled seal roll onto the seal-roll supports (1) as shown in the following figure. Notice that the end of the seal material rolls out from under the roll.
- 2 Pull the seal from under the cross-beam (2), as the following figure shows.

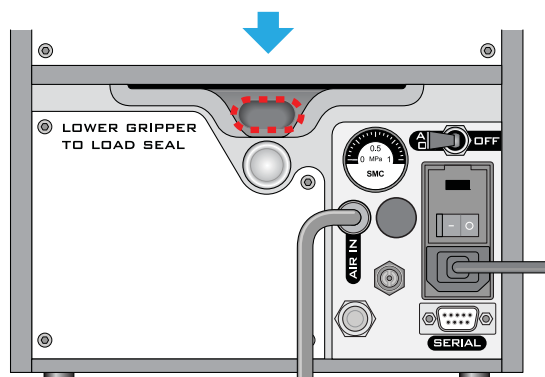


To insert the seal into the PlateLoc Sealer:

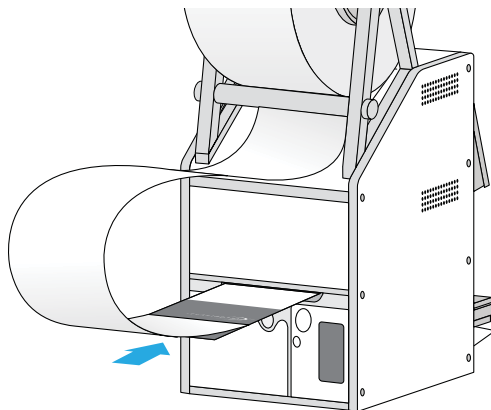
- 1 On the back of the PlateLoc Sealer, push down the red recessed open-gripper button until it clicks.
Pressing the button opens the seal gripper inside the device.

4 Getting started

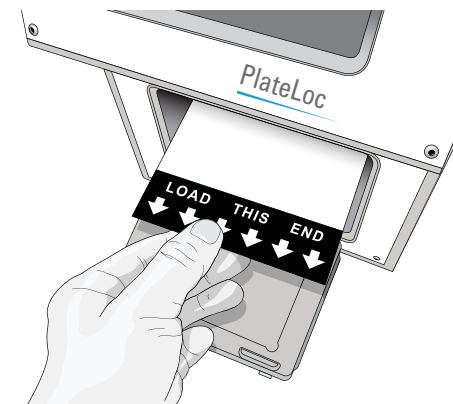
Loading and unloading a roll of seal

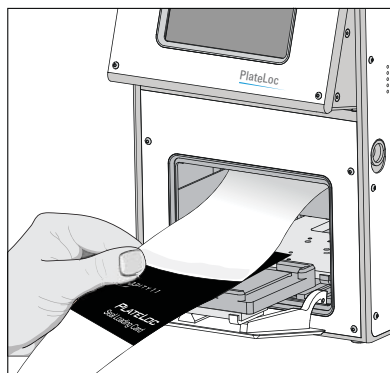


- 2 Remove the strip of paper that covers the adhesive on the end of the seal-loading card.
- 3 Follow the instructions on the card to:
 - a Attach the end of the seal to the card.
 - b Insert the card into the seal entry slot on the back of the PlateLoc Sealer.
 - c Push the card into the PlateLoc Sealer until it protrudes beyond the chamber doorway at the front of the device.



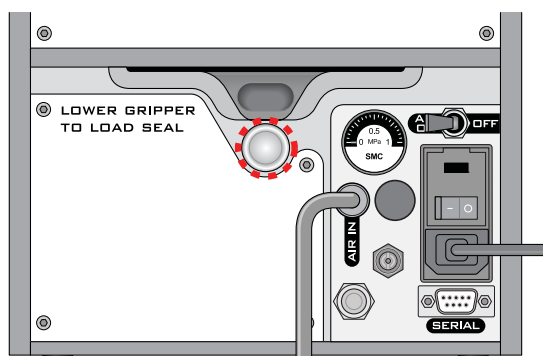
- d Pull the card through the PlateLoc Sealer so that the end of the seal is past the plate stage.



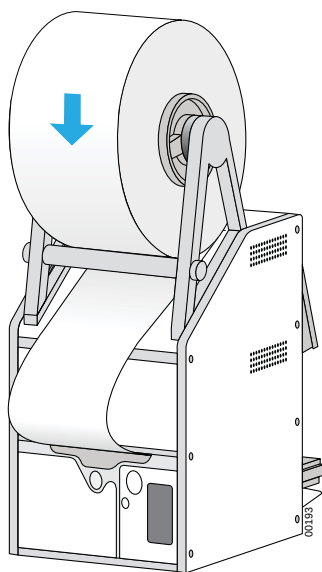


- 4** While maintaining the alignment of the seal with the plate stage, press the silver close-gripper button on the back of the PlateLoc Sealer until it clicks. The red open-gripper button pops back up.

Pressing the silver button closes the gripper and holds the seal in place inside the device.



- 5** Turn the seal roll to remove excess slack in the seal.



- 6** Load a plate stage on the plate-stage support.
7 Load a spare microplate on the plate stage.

4 Getting started

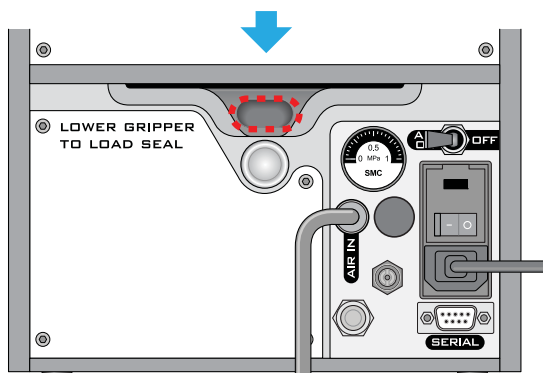
Loading and unloading a roll of seal

- 8 Hold the seal-loading card at the touchscreen level, keeping the tension on the card.
- 9 On the touchscreen Home page , press **Run**. Continue to keep the tension on the card as the seal feeds through the PlateLoc Sealer.
The purpose of this seal cycle is to cut the seal and prepare it for use. The seal is not applied to the spare microplate.
- 10 If an error displays on the touchscreen, press **Clear** to clear the error. Press **Run** again to make sure that the seal will apply to the spare microplate.

Unloading a roll of seal

To unload a roll of seal:

- 1 Power cycle the PlateLoc Sealer by turning off and turning on the device.
Power cycling resets the components inside the device and removes the hold on the seal.
- 2 On the back of the PlateLoc Sealer, push down the red recessed gripper-release button until it clicks.
Pressing the button opens the seal gripper inside the device.



- 3 Pull the seal out of the slot.
- 4 Lift the seal roll off of the seal-roll supports.
- 5 Unscrew one hub from the axle.
- 6 Remove the roll from the axle.

Related information

For information about...	See...
Safety guidelines	"Safety guidelines" on page 1
Hardware components	"Hardware overview" on page 9
Connection panel	"Connection panel" on page 12

5 Setting up for automation software control

This chapter describes how to set up the PlateLoc Sealer when the device is integrated in a lab automation system and under software control.

The topics are:

- [“Setup workflow for automation software control” on page 58](#)
- [“Creating and editing VWorks device files” on page 59](#)
- [“Opening PlateLoc Diagnostics” on page 62](#)
- [“Creating and editing profiles” on page 64](#)
- [“Initializing the device” on page 67](#)

Note: You do not need to read the topics in this section if you have a standalone PlateLoc Sealer.

Setup workflow for automation software control

About this topic

Note: You do not need to read the topics in this section if you have a standalone PlateLoc Sealer.

Workflow

If you are setting up the PlateLoc Sealer for the first time, perform the following steps to establish communication between the computer and the device.

Step	Procedure	See...
1	Add the PlateLoc device to a device file.	"Creating and editing VWorks device files" on page 59
2	Open the PlateLoc Diagnostics software.	"Opening PlateLoc Diagnostics" on page 62
3	Create a device profile.	"Creating and editing profiles" on page 64
4	Initialize the device profile.	"Initializing the device" on page 67

Creating and editing VWorks device files

About this topic

Read this topic if you are integrating the PlateLoc Sealer in a lab automation system that uses the VWorks software. This topic explains how to add the PlateLoc device to a VWorks device file and how to edit the device properties.

Devices and device file defined

What is a device?

A device is an item in your lab automation system that has an entry in the VWorks software device file. A device can be a robot, an instrument, or a location in the system that can hold a piece of labware.

What is a device file?

To communicate with and to control the robot and integrated devices, the VWorks software uses a device file that contains the following information:

- List of devices the software will communicate with and control
- Profile of each device (communication method, unique device configuration information)
- System-related configuration information of each device (for example, approach height, barcode access, and so on)

You provide the device information in the VWorks software. The device information is stored in a device (.dev) file that is located in a folder you specify when saving the file.

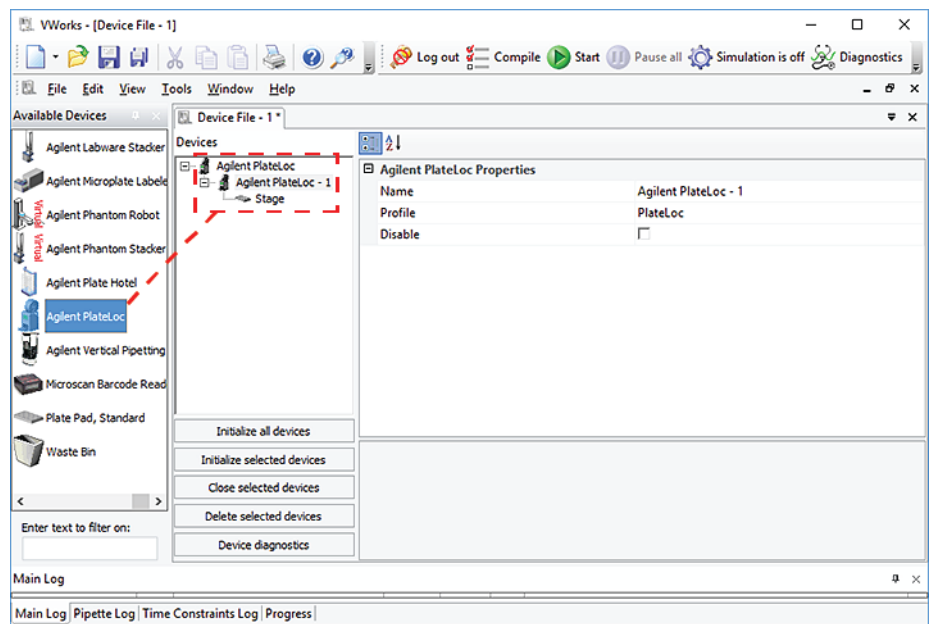
Adding the PlateLoc device to a device file

For instruction on how to log in to the VWorks software, see the [VWorks Automation Control User Guide](#) for instructions.

To add the PlateLoc device to a device file:

- 1 In the VWorks window, open the device file or create a new device file.
 - To create a device file, click **File > New > Device**. A Device File tab appears. Select **File > Save** to save the device file.
 - To open a device file, click **File > Open**. In the **Open** dialog box, select **Device Files (.dev files)** as the file type, select the <name>.dev file, and click **Open**.
- 2 In the **Available Devices** area, double-click the Agilent PlateLoc device icon.
Alternatively, you can drag the icon from the **Available Devices** area into the **Device File** area.

Figure PlateLoc device in the VWorks window



Notice that in the **Devices** area, the first PlateLoc device is labeled PlateLoc-1. If you add another PlateLoc device, it will appear as PlateLoc-2.

Note: If you do not see the PlateLoc in the Available Devices list, check that the plugin file (AgilentPlateLoc.dll) is stored in the following folder:

C:\Program Files (x86)\Agilent Technologies\VWorks\Plugins\

If you have added the PlateLoc plugin file in the Plugins folder and started the VWorks software, and still do not see the PlateLoc in the Available Devices list, close any open device files and protocol files, and then select Tools > Reload Plugins.

Setting the PlateLoc device properties

To set the PlateLoc properties:

- 1 In the **PlateLoc Properties** area of the device file, type or select the following:

Property	Description
Name	The name of the PlateLoc.
Profile	The profile associated with the device. Select the desired profile from the list. If the profile you want does not appear in the list, or if no profile appears in the list, see “Creating and editing profiles” on page 64 , and then return to this step to select the profile.

IMPORTANT Without the profile, you will not be able to establish communication with the device.

- 2 In the **Devices** area, expand PlateLoc, and then select **Stage**.
- 3 In the PlateLoc **Location Properties** area, set the following parameters:

Parameter	Description
Allow/prohibited labware	Permitted labware class for the selected location. Use this field only if you want to limit the labware types. For details on labware classes, see the VWorks Automation Control Setup Guide .
BCR on south/west/north/east side	The location of the barcode reader and the desired barcode reader device. Use this field only if a barcode reader is installed on the device.
Use for deadlock avoidance	The option to permit the location to be used for deadlock avoidance. Select Yes to permit labware to be moved to this location to avoid a deadlock in the system. Select No if you do not want to move random labware to this location to avoid deadlock. IMPORTANT For typical operation, select Yes for the PlateLoc.
Door	Not applicable

- 4 Select **File > Save** to save the device file.

Related information

For information about...	See...
Opening the diagnostics software	"Opening PlateLoc Diagnostics" on page 62
Creating a device profile	"Creating and editing profiles" on page 64
Initializing the device profile	"Initializing the device" on page 67

Opening PlateLoc Diagnostics

About this topic

Read this topic if your PlateLoc Sealer is integrated with automation control software.

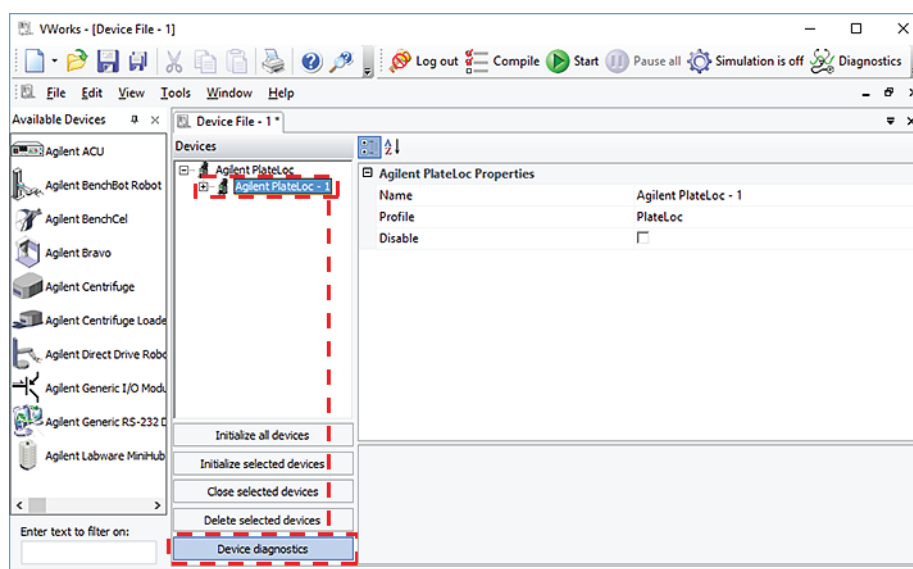
The PlateLoc Diagnostics software enables you to create device profiles and control the motions of the PlateLoc Sealer. The way you access PlateLoc Diagnostics depends on the automation control software that you are using:

- “Opening Diagnostics from the VWorks software” on page 62
- “Opening Diagnostics from third-party software” on page 64

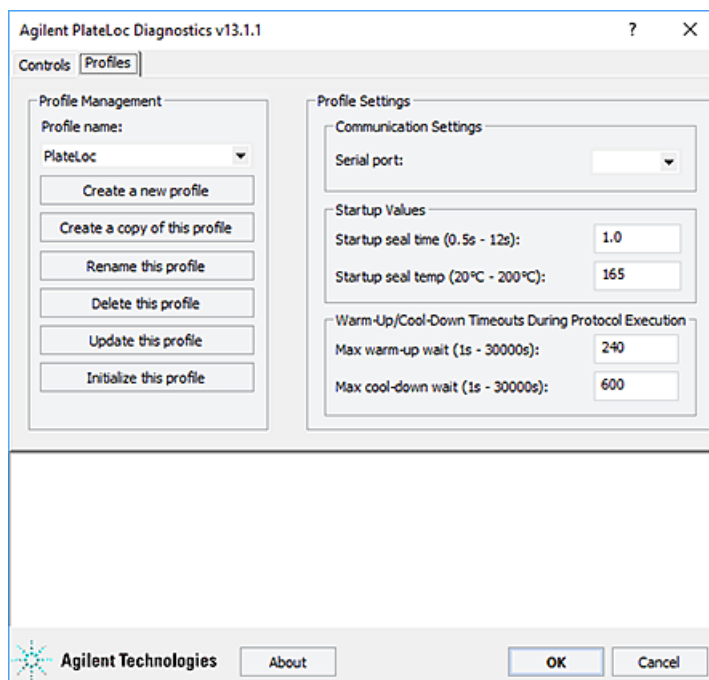
Opening Diagnostics from the VWorks software

To open PlateLoc Diagnostics:

- 1 In the VWorks window, ensure that the device file is open.
To open the device file, choose **File > Open**. In the **Open** dialog box, select the *.dev file type, navigate to the device file, and then click **Open**.
A list of the devices appears in the Device File tab.
- 2 Select the Agilent PlateLoc device, and then click **Device diagnostics**.

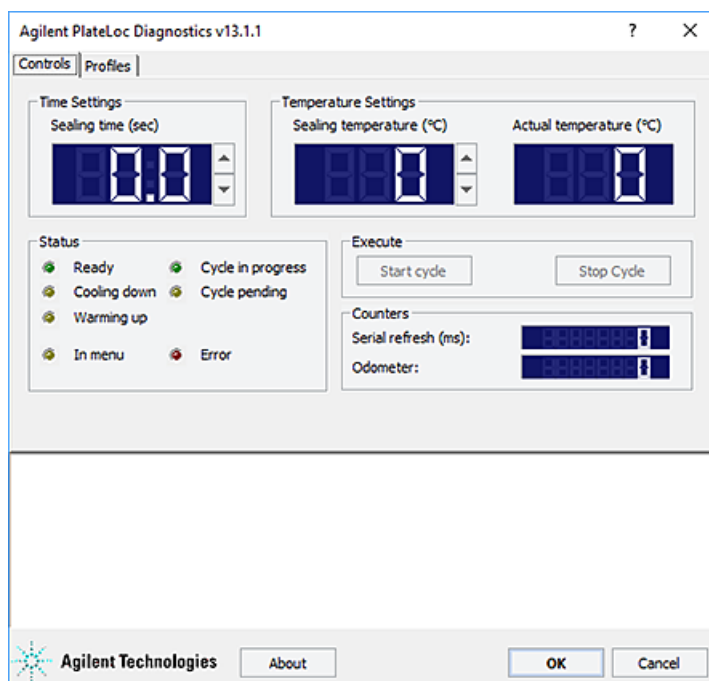


The PlateLoc Diagnostics dialog box opens with the Profiles tab displayed.



The PlateLoc Diagnostics dialog box contains two tabs:

- *Profiles tab*. Enables you to create and manage PlateLoc profiles, specify default parameter values, and establish communication between the PlateLoc Sealer and the computer.
- *Controls tab*. Provides tools to help you diagnose problems with the PlateLoc Sealer. You can set sealing parameters, perform a seal cycle, and view status indicators.



Opening Diagnostics from third-party software

If you are using third-party automation software, call the ShowDiagsDialog method to open PlateLoc Diagnostics. For details, see the [PlateLoc Sealer ActiveX version 13.0 User Guide](#).

Related information

For information about...	See...
PlateLoc ActiveX controls	PlateLoc Sealer ActiveX version 13.0 User Guide
Creating a profile	"Creating and editing profiles" on page 64
Initializing a profile	"Initializing the device" on page 67

Creating and editing profiles

About this topic

Read this topic if your PlateLoc Sealer is integrated with automation control software. This topic explains how to use PlateLoc Diagnostics to create a profile for the PlateLoc Sealer.

About profiles

IMPORTANT

Each PlateLoc Sealer in a lab automation system requires a unique device profile.

The profile does the following:

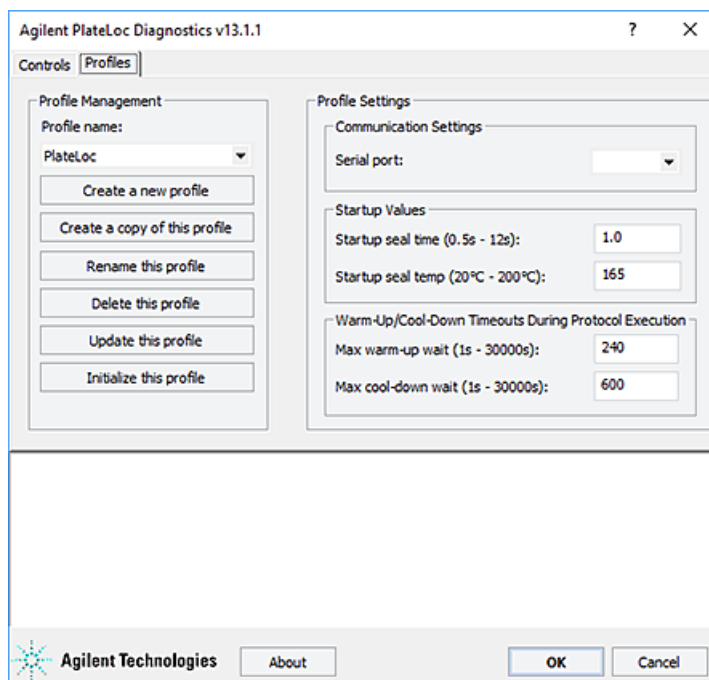
- Specifies the communication port on the computer, which enables the lab automation system software to communicate with the PlateLoc Sealer.
- Allows you to specify default parameter values.

You use PlateLoc Diagnostics to create and manage the device profiles.

Creating profiles

To create profiles for the PlateLoc:

- 1 Open the **PlateLoc Diagnostics** dialog box. For details, see ["Opening PlateLoc Diagnostics" on page 62](#).
- 2 In the **Profiles** tab, click **Create a new profile**.



- 3 In the **Create Profile** dialog box, type a name for the new profile, and then click **OK**.
- 4 In the **Profile Settings** area, set the following parameters.

Parameter	Description
Communication Settings Serial port	Select the COM port on the controlling computer that is connected to the PlateLoc Sealer.
Startup Values	The PlateLoc Sealer defaults to these values every time you initialize the device.
Startup seal time (0.5–12 s)	Type the default sealing duration, in seconds.
Startup seal temp (20–200 °C)	Type the default sealing temperature, in degrees Celsius.
Warm-Up/Cool-Down Timeouts	The wait period starts when the lab automation software commands the PlateLoc Sealer to start the seal cycle.
Max warm-up wait (1–30000 s)	Type the amount of time, in seconds, the PlateLoc Sealer should wait for the warm-up before it times out.
Max cool-down wait (1–30000 s)	Type the amount of time, in seconds, the PlateLoc Sealer should wait for the cool-down before it times out.

- 5 Click **Update this profile** to save the current selections and settings.

Editing and managing profiles

In the Profiles tab, you can select an existing profile, and then rename, copy, or delete the profile.

To edit a profile:

- 1 In the **Profiles** tab, select the profile you want to edit in the **Profile Management** area.
- 2 Modify the profile information.
- 3 When you are finished, click **Update this profile** to save the changes.

Related information

For information about...	See...
PlateLoc ActiveX controls	PlateLoc Sealer ActiveX version 13.0 User Guide
Opening PlateLoc Diagnostics	"Opening PlateLoc Diagnostics" on page 62
Initializing a profile	"Initializing the device" on page 67

Initializing the device

About this topic

To establish communication between the computer and the PlateLoc Sealer, you initialize the PlateLoc device. This topic describes how to initialize the PlateLoc device in the following ways:

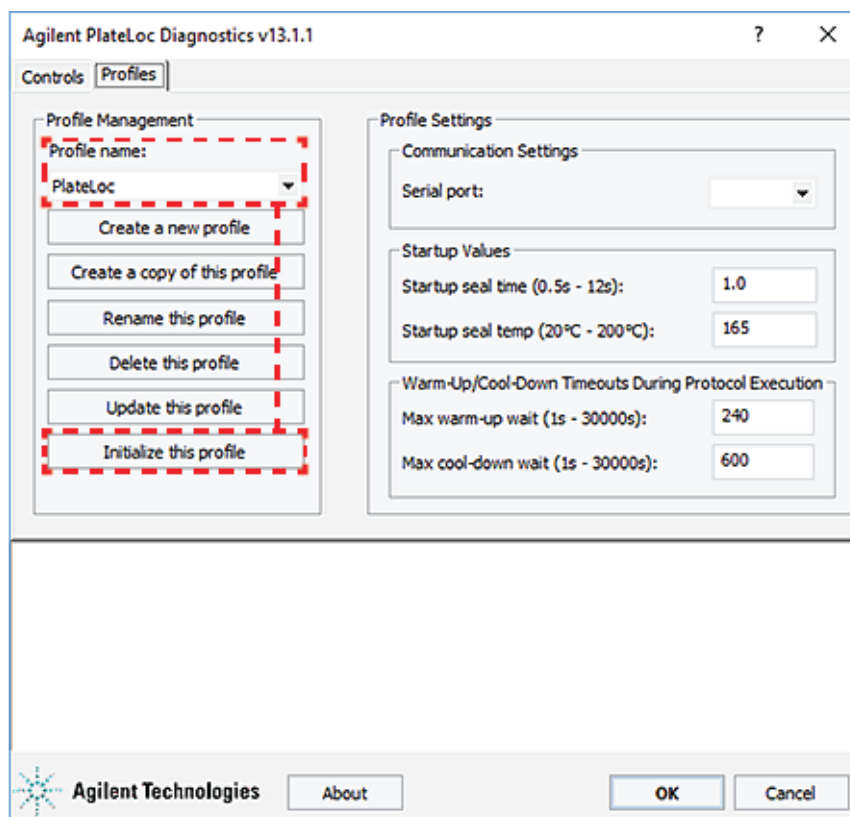
- *PlateLoc Diagnostics*. To control the PlateLoc Sealer using PlateLoc Diagnostics, initialize the profile in PlateLoc Diagnostics.
- *VWorks window*. To control the PlateLoc Sealer using the VWorks software, for example, to run a protocol, initialize the device in the VWorks window.

For a description of the ActiveX control, see the [PlateLoc Sealer ActiveX version 13.0 User Guide](#).

Initializing the device in PlateLoc Diagnostics

To initialize the device in PlateLoc Diagnostics:

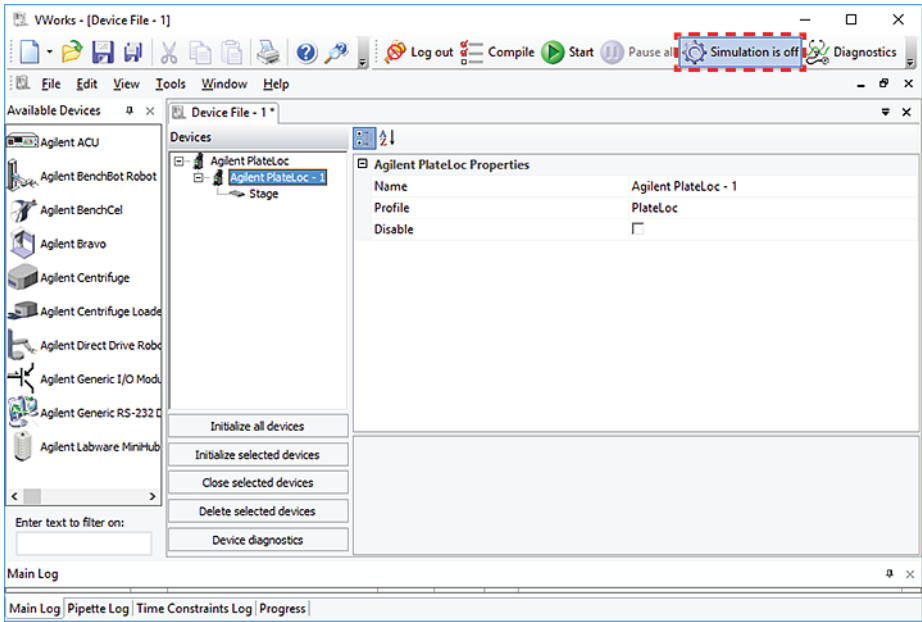
- 1 Open the **PlateLoc Diagnostics** dialog box.
- 2 In the **Profiles** tab, ensure that the correct profile is selected in the **Profile name** list.
- 3 Click **Initialize this profile** to start initializing the selected profile.



Initializing the PlateLoc device in the VWorks software

To initialize the device from the VWorks window:

- 1 In the VWorks window, ensure that **Simulation is off**.



- 2 Choose **File > Open**. In the **Open** dialog box, select the ***.dev** file type, navigate to the device file, and then click **Open**.
A list of the devices appears in the Device File tab.
- 3 In the **Devices** area, select the PlateLoc device.
- 4 In the PlateLoc **Properties** area, make sure the correct profile is selected.
- 5 Click **Initialize selected devices**.

Related information

For information about...	See...
PlateLoc ActiveX controls	PlateLoc Sealer ActiveX version 13.0 User Guide
VWorks software	VWorks Automation Control User Guide
Opening PlateLoc Diagnostics	"Opening PlateLoc Diagnostics" on page 62
Creating a profile	"Creating and editing profiles" on page 64

6 Sealing microplates

This chapter contains the following topics:

- “Loading an insert and a microplate” on page 70
- “Setting the sealing parameters” on page 72
- “Starting the seal cycle” on page 77
- “Stopping a seal cycle in progress” on page 79

Loading an insert and a microplate

About this topic

This topic explains how to load a microplate in the PlateLoc Sealer.

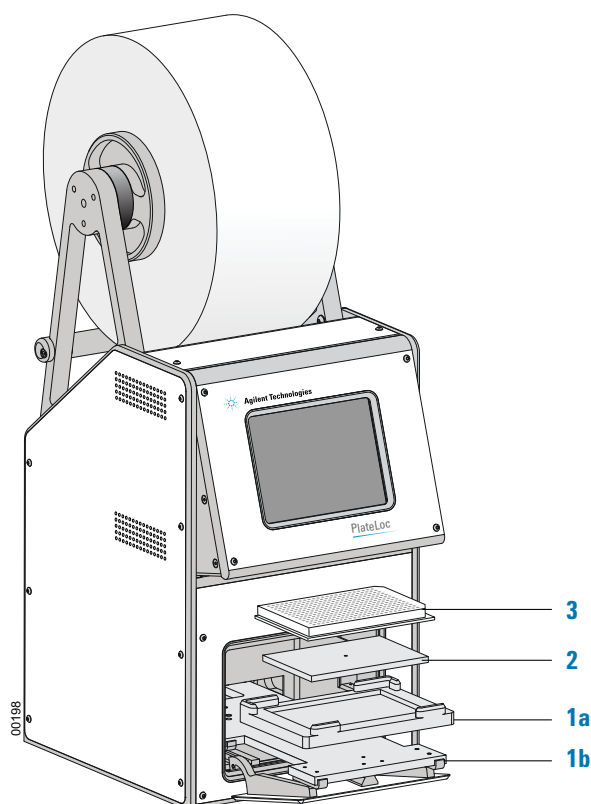
Before you start

Step	For this task...	See...
1	Turn on the PlateLoc Sealer.	"Turning on and off the power" on page 42
2	Turn on the air and ensure that the PlateLoc door is open.	"Turning on and off the air" on page 43
3	<i>Gas-Purging PlateLoc only:</i> - Ensure the oxygen monitor is turned on. - Ensure the argon source (house or cylinder) is turned on.	"Turning on and turning off the argon (Gas-Purging PlateLoc only)" on page 45
4	Ensure the seal is properly loaded.	"Loading and unloading a roll of seal" on page 51
5	<i>Lab automation systems only.</i> Initialize the PlateLoc Sealer.	"Initializing the device" on page 67
6	Verify the sealing parameters are set correctly.	<i>Standalone device.</i> "Setting the sealing parameters" on page 72. <i>Integrated device.</i> <i>VWorks Automation Control User Guide</i> or third-party software documentation.
7	Verify that the PlateLoc Sealer is warmed up or cooled down to the sealing temperature.	–

Standalone device procedure

To load a microplate and an insert in the standalone device:

- 1 Place the removable plate stage (1a) on the plate-stage support (1b), as the following figure shows.
- 2 *Optional.* Place the insert (2) on the plate stage.
- 3 Place the microplate (3) on the insert or plate stage. Make sure the microplate is level and the microplate skirt is within the raised tabs on the plate stage.



Lab automation system procedure

If the PlateLoc Sealer is installed in a lab automation system, make sure that you load the appropriate microplate insert before you start the protocol run. For guidelines on choosing an insert, see [“Inserts for microplate support” on page 16](#).

During the run, the robot loads the microplates automatically. You do not need to manually load each microplate.

Related information

For information about...	See...
Microplate requirements	“Labware considerations” on page 13
Using an insert for uniform seals	“Inserts for microplate support” on page 16

For information about...	See...
Seal optimization guidelines	"Optimization test guidelines" on page 82

Setting the sealing parameters

About this topic

This topic describes how to set the sealing parameters:

- ["Using the touchscreen to set sealing parameters" on page 73](#)
- ["Selecting and editing a saved method \(touchscreen\)" on page 75](#)
- ["About using lab automation software to set parameters" on page 76](#)

Note: To use PlateLoc Diagnostics to perform a seal cycle, see ["Using diagnostic tools" on page 94](#).

Before you start

To prepare for a seal cycle, ensure the following:

Step	Procedure	See...
1	The PlateLoc Sealer is turned on.	"Turning on and off the power" on page 42
2	The air is turned on.	"Turning on and off the air" on page 43
3	The seal is properly loaded.	"Loading and unloading a roll of seal" on page 51
4	<i>Lab automation systems only.</i> Communication between the controlling computer and the PlateLoc Sealer is established.	"Initializing the device" on page 67

Settings to use as a starting point

The seal time and temperature settings depend on the type of microplate and seal that you are using. Generally, the shortest seal time and lowest temperature provide the best results. However, you should perform seal optimization tests to determine the optimal seal time and temperature settings. For general optimization guidelines, see ["Optimization test guidelines" on page 82](#).

The following table lists guidelines that you can use as a starting point. The the most up-to-date recommendations, see the [PlateLoc Thermal Plate Sealer Seal Selection Guide](#).

CAUTION

Seals from a supplier other than Agilent Technologies might not seal properly in the PlateLoc Sealer and can damage the device. Use only Agilent seals with the PlateLoc Sealer.

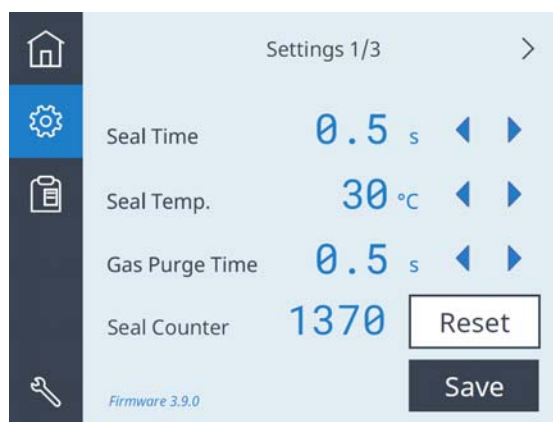
Agilent seal	Microplate type		
	Cyclic olefin copolymer	Polypropylene	Polystyrene
Peelable Aluminum	190 °C, 2.5 sec	170 °C, 1.2 sec	185°C; 1.2 sec
Peelable Aluminum RT	185 °C, 1.5 sec	175 °C, 1.5 sec	Not compatible
Pierceable Aluminum	–	170 °C, 1.2 sec	No data available
Clear Peelable Seal	–	110 °C, 1–1.2 sec	No data available
Clear Pierceable Thin Seal	–	110 °C, 1–1.2 sec	No data available
Clear Permanent Seal	–	175 °C, 1.2–2 sec	–

Using the touchscreen to set sealing parameters

When the PlateLoc Sealer is operated as a standalone device, you use the touchscreen to set the sealing parameters

To set the sealing parameters on the touchscreen:

- 1 Press  to display the Settings pages.



- 2 In the **Settings 1/3** page, set the following values:
 - **Seal Time.** The duration (seconds) that the hot plate will be in contact with the seal material and microplate.
 - **Seal Temp.** The hot plate temperature (°C) when the seal cycle starts.
 - **Gas Purge Time.** *Gas-Purging PlateLocs only.* The amount of time (seconds) the microplate will be exposed to argon before the microplate is sealed.

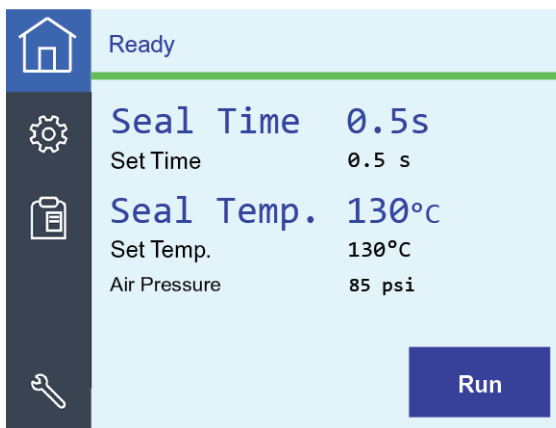
Press  or  to change the value for the corresponding setting.

- 3 Press **Save** to save the new settings.

The touchscreen automatically returns to the  Home page. Status messages appear at the top of the Home page, such as, Warming up, Cooling down, or Ready.

6 Sealing microplates

Setting the sealing parameters



You can also monitor the following:

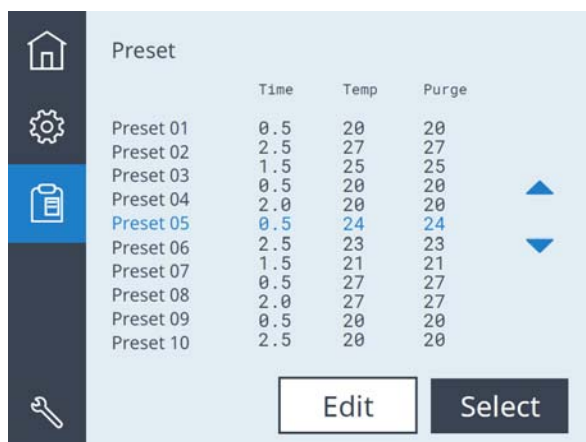
- **Seal Time** displays the time remaining in the seal cycle.
- **Seal Temp** displays the current temperature. The text turns blue when the hot plate temperature is within Set Temp run temperature range.

Note: The touchscreen readout displays the temperature as measured on the opposite side of the hot plate sealing surface. The actual temperature of the sealing surface may vary slightly.

Selecting and editing a saved method (touchscreen)

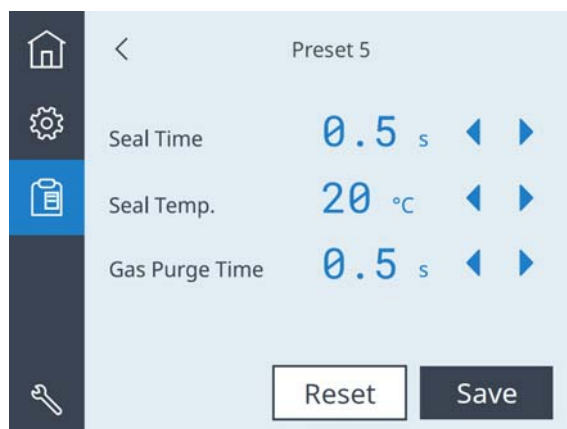
To select and edit a saved plate sealing method:

- 1 On the touchscreen, press  to display the Preset page.

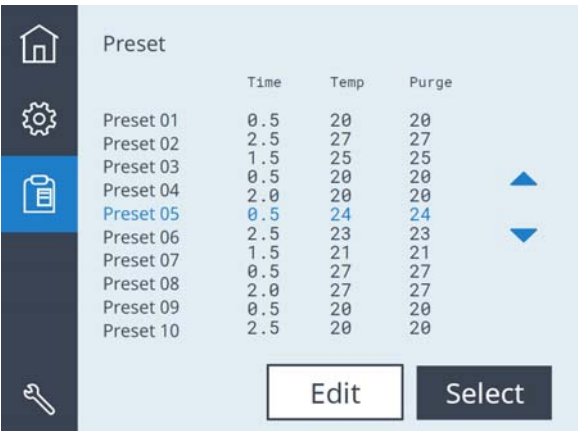


- 2 Press  or  to move the highlight to the desired Preset row, and then do one of the following:
 - To use the highlighted Preset without changing it, press **Select**. The selected values are loaded to settings on the Home page. Status messages appear at the top of the Home page, such as, Warming up, Cooling down, or Ready.
 - To edit the highlighted Preset, press **Edit**, and then proceed to step 3.
- 3 In the Preset edit page, set the following:
 - **Seal Time.** The duration (seconds) that the hot plate will be in contact with the seal material and microplate.
 - **Seal Temp.** The hot plate temperature (°C) when the seal cycle starts.
 - **Gas Purge Time.** *Gas-Purging PlateLocs only.* The amount of time (seconds) the microplate will be exposed to argon before the microplate is sealed.

Press  or  to change the value for the corresponding setting.



- 4 Click **Save** to save the edits for the Preset.
- 5 To load the values for the edited Preset, highlight the corresponding Preset row on the Preset page, and then press **Select**.



- 6 Press to return to the Home page.
The selected values are loaded to settings on the Home page. Status messages appear at the top of the Home page, such as, Warming up, Cooling down, or Ready.

About using lab automation software to set parameters

In the VWorks software, you set the sealing parameters when you set the Seal (PlateLoc) task properties. For details, see the [VWorks Automation Control User Guide](#).
If the PlateLoc Sealer is integrated with third-party software, see the [PlateLoc Sealer ActiveX version 13.0 User Guide](#).

Related information

For information about...	See...
Guidelines on seal time and temperature parameters	PlateLoc Thermal Plate Sealer Seal Selection Guide
Microplate requirements	"Labware considerations" on page 13
Using an insert for uniform seals	"Inserts for microplate support" on page 16

Starting the seal cycle

About this topic

This topic explains how to seal a microplate using the PlateLoc Sealer touchscreen or in an Agilent lab automation system.

Note: To use PlateLoc Diagnostics to perform a seal cycle, see [“Using diagnostic tools” on page 94](#).

Before you start

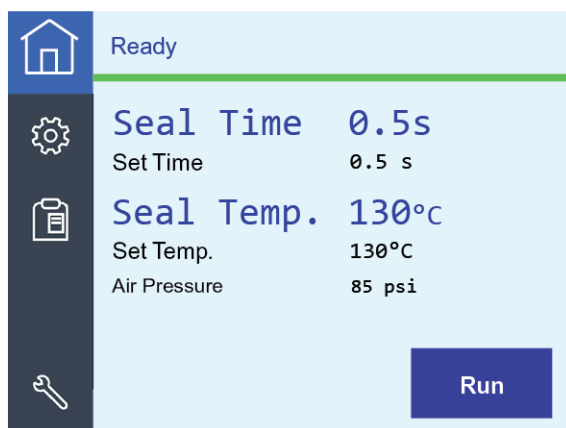
Ensure that the following steps have been performed:

Step	Procedure	See...
1	The PlateLoc Sealer is turned on.	“Turning on and off the power” on page 42
2	The air is turned on and the internal air pressure is within the recommended range.	“Turning on and off the air” on page 43
3	<i>Gas-Purging PlateLoc only:</i> - The oxygen monitor is turned on. - The argon source (house or cylinder) is turned on.	“Turning on and turning off the argon (Gas-Purging PlateLoc only)” on page 45
4	The seal is properly loaded.	“Loading and unloading a roll of seal” on page 51
5	<i>Lab automation systems only.</i> Communication between the controlling computer and the PlateLoc Sealer is established.	“Initializing the device” on page 67
6	The sealing parameters are set correctly.	“Setting the sealing parameters” on page 72
7	<i>Standalone PlateLoc only.</i> The microplate is loaded.	“Loading an insert and a microplate” on page 70

Using the touchscreen to start the seal cycle

To use the touchscreen to start the seal cycle:

- 1 If not already displayed, press  to go to the Home page.
- 2 Verify the following:
 - The correct values are specified for **Set Time** and **Set Temp.**
 - At the top of the page, the status bar displays **Ready**.



- 3 Press **Run**. The microplate moves into the sealing chamber and the door closes. The seal cycle begins. The status bar at the top of the touchscreen displays **In Progress**.



Gas-Purging PlateLoc only. If the Gas Purge Time is greater than 0.0 seconds, the argon fills the sealing chamber for the specified amount of time before the seal is applied. The argon automatically turns off just before the seal is applied.

Note: If the Run button is unavailable, the PlateLoc Sealer is warming up or cooling down. You cannot start the seal cycle until the PlateLoc Sealer is within the run temperature range of the specified Set Temp.

Note: If an error occurs during the seal cycle, the cycle is aborted.

After the seal cycle is finished:

When the seal cycle is finished, the Status message changes to Ready. The door opens. The microplate moves out of the sealing chamber.

WARNING

Do not handle the microplate immediately after the seal cycle is finished. The sealed microplate and the insert might be hot.

Wait a few seconds, and then remove the sealed microplate and insert from the plate stage.

Lab automation system procedure

You can start one or more seal cycles when you start the protocol run in the VWorks software. See the [VWorks Automation Control User Guide](#).

To start a seal cycle using third-party software, see the [PlateLoc Sealer ActiveX version 13.0 User Guide](#).

Related information

For information about...	See...
Microplate requirements	"Labware considerations" on page 13
Using an insert for uniform seals	"Inserts for microplate support" on page 16
Stopping a seal cycle in progress	"Stopping a seal cycle in progress" on page 79
Seal optimization guidelines	"Optimization test guidelines" on page 82

Stopping a seal cycle in progress

About this topic

This topic explains how to stop the PlateLoc Sealer when a seal cycle is in progress.

Using the touchscreen to stop a seal cycle

To stop a seal cycle that is in progress:

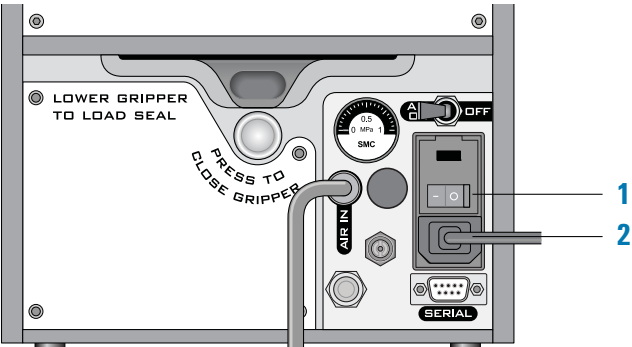
On the **Home** page, press **Stop**.



Turning off the device to stop a seal cycle

To stop a seal cycle in an emergency:

In case the Stop button on the touchscreen does not work or is not responding fast enough, turn off the PlateLoc Sealer (1). The on/off switch is on the back of the device. Alternatively, you can disconnect the power to the PlateLoc Sealer (2).



Using lab automation software to stop a seal cycle

You can stop a seal cycle from the VWorks software. For detailed instructions, see the [VWorks Automation Control User Guide](#).
To stop a seal cycle using third-party software, see the [PlateLoc Sealer ActiveX version 13.0 User Guide](#).

Related information

For information about...	See...
Using an insert for uniform seals	"Inserts for microplate support" on page 16
Setting up the seal cycle duration and temperature parameters	"Setting the sealing parameters" on page 72
Starting a seal cycle	"Starting the seal cycle" on page 77



7 Optimizing seal quality

This chapter contains the following topics:

- [“Optimization test guidelines” on page 82](#)
- [“Conducting a seal optimization test” on page 83](#)

Optimization test guidelines

Factors that affect seal quality

The seal quality depends on a number of factors, such as the microplate material and design, the type of seal you use, the need for support under the microplate, the seal temperature, and seal-cycle duration.

Before you start to seal microplates, make sure you run optimization tests to determine the following:

- The best seal to use
- The best insert to use
- The optimal sealing temperature
- The optimal seal cycle duration

Test guidelines

When you plan optimization tests, consider the following:

- Run an optimization test for each type of microplate material and design. Microplates made from the same material but with different designs can require different sealing parameters.
- Use spare microplates in the optimization tests.
- Use a new microplate for each seal cycle. The characteristics of a microplate can change through repeated seal cycles, therefore changing the seal results.
- Consider the microplate content and fluid level in the wells.
- Consider the downstream application. For example, microplates used in a thermal cycler will require different sealing parameters than microplates placed in the freezer.
- Consider the downstream uses of the microplate. For example, microplates that will be sealed one time and discarded can have a more permanent seal than a microplate that will be reused and resealed repeatedly before being discarded.
- Start an optimization test with a low-temperature and short-duration setting. Adjust the parameters in small increments.
- Check the quality of the seal after each seal cycle to determine which sealing parameters to adjust and whether the microplate requires an insert for support.
- Record the optimal sealing parameters.

Related information

For information about...	See...
Seal optimization tests	"Conducting a seal optimization test" on page 83
Seal selection, insert selection, and other optimization guidelines	PlateLoc Thermal Plate Sealer Seal Selection Guide
Microplate guidelines	"Labware considerations" on page 13

For information about...	See...
Using an insert for uniform seals	“Inserts for microplate support” on page 16
Setting up the seal cycle duration and temperature parameters	“Setting the sealing parameters” on page 72

Conducting a seal optimization test

About this topic

This topic explains how to check the seal quality to determine how to adjust the sealing parameters.

Workflow

Step	For this task...	See...
1	If applicable, determine the type of insert required for your microplate type.	• “Labware considerations” on page 13 • “Inserts for microplate support” on page 16
2	Determine the recommended time and temperature parameters for your chosen seal and microplate material. <i>Note:</i> In general, you should start by using the lowest temperature possible for the shortest time for your seal type and microplate material.	PlateLoc Thermal Plate Sealer Seal Selection Guide
3	Apply a seal using the recommended time and temperature parameters.	• “Setting the sealing parameters” on page 72 • “Starting the seal cycle” on page 77
4	Evaluate the seal quality by examining the well impressions made on the seal. <i>Note:</i> The pattern and quality of these impressions is a good indicator of seal quality.	“Evaluating the seal quality” on page 84
5	Make any required adjustments to the parameter settings, and then repeat step 2 to step 4 . Repeat this process until you have optimized the parameters for your application.	“Setting the sealing parameters” on page 72

Evaluating the seal quality

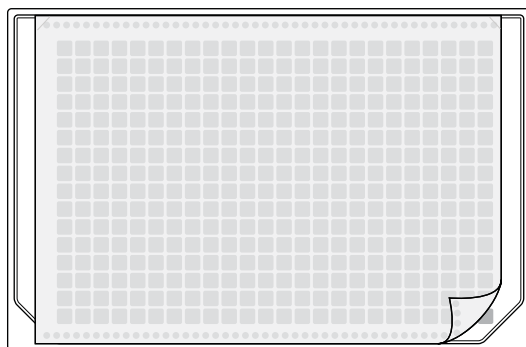
WARNING

Do not handle the microplate immediately after the seal cycle is finished. The sealed microplate might be hot and the hot surface can cause burn injury.

To check the seal quality:

- 1 After the seal cycle is finished, wait for the sealed microplate to cool down enough so that it is safe for handling (10 to 30 seconds).
Note: Pierceable seals might permanently adhere to the microplate. Do not wait too long or the seals will be difficult to remove.
- 2 Remove the microplate from the PlateLoc Sealer.
- 3 Carefully, peel off the seal material by lifting one of the corners of the seal, as the following figure shows.

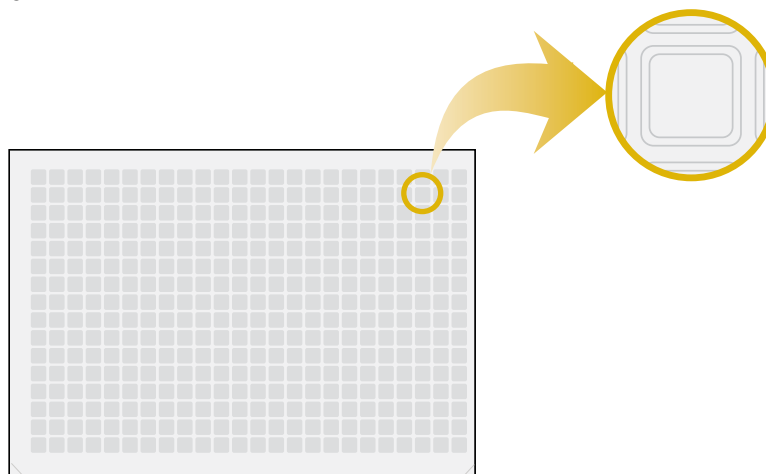
Figure Removing the seal



If the pattern in the center of the seal differs from the pattern around the edges, an adjustment in the microplate insert size might be required. See [“Effect of insert thickness on seal quality” on page 85](#).

- 4 Inspect the underside of the removed seal material and study the well impressions left on the seal.
If the impression of each well is unbroken on the underside of the seal material, the microplate was properly sealed.

Figure Example of a good seal showing detail of well impression



- 5 Look closely at a single sample well to determine if the well impression matches the thickness and shape of the well walls.

Use a magnifying glass or inspection microscope, if necessary, to see the area surrounding the sample well rim.

The following figures show examples of well impressions that indicate seal quality:

- *Good seal.* The well impression should match the shape and thickness of the chimney walls, such as examples **A** and **D**.
- *Poor seal caused by insufficient heat.* If the well impression has faint or broken segments, such as examples **B** and **C**, insufficient heat may have been applied to form a complete impression of the sample well rim. Try increasing the sealing temperature or time (duration).
- *Poor seal caused by too much heat.* If the well impression is significantly thicker than the chimney wall, such as example **E**, decrease the sealing temperature or duration. Thick impressions may indicate excessive melting of the seal, causing the seal to be difficult to remove and reducing the ability to reseal the microplate.

Figure Examples of well impressions: (A) Good seal, (B) Missing segment, and (C) Faint segment

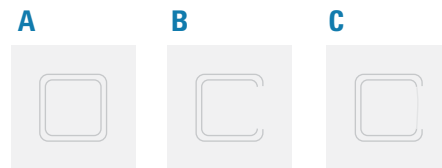
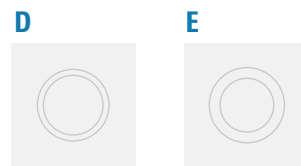


Figure Examples of the well rim width in the seal (D) Good impression with thin, defined chimney edge, and (E) Poor impression that is thicker than the chimney wall



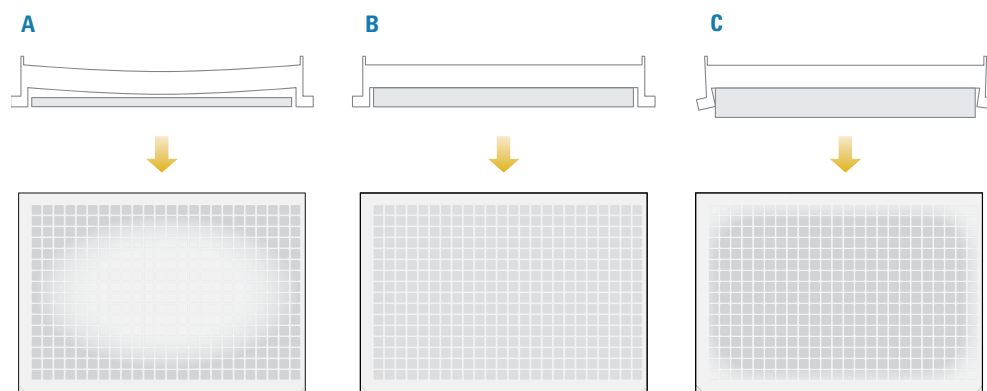
Effect of insert thickness on seal quality

The following figure shows a side view of a microplate with inserts of different thicknesses and the table describes the resulting seal quality.

7 Optimizing seal quality

Conducting a seal optimization test

Figure Effect of insert thickness on seal quality: (A) Too thin, (B) Correct, and (C) Too thick



Item	Insert thickness	Seal quality
A	Too thin	The center of the microplate bends downward during sealing, leading to good sealing around the edges, but poor sealing in the middle of the microplate.
B	Correct	The entire microplate surface is sealed uniformly.
C	Too thick	The edges of the microplate bends downward during sealing, resulting in good sealing in the middle of the microplate, but poor sealing around the edges.

Related information

For information about...	See...
Seal selection, insert selection, and other optimization test guidelines	PlateLoc Thermal Plate Sealer Seal Selection Guide
Microplate guidelines	"Labware considerations" on page 13
Using an insert for uniform seals	"Inserts for microplate support" on page 16
Setting up the seal cycle duration and temperature parameters	"Setting the sealing parameters" on page 72
Starting a seal cycle	"Starting the seal cycle" on page 77

8 Maintenance and troubleshooting

This chapter provides instructions for the routine maintenance and care of the PlateLoc Sealer.

The topics are:

- [“Routine maintenance” on page 88](#)
- [“Cleaning the hot plate” on page 89](#)
- [“Cleaning the touchscreen” on page 91](#)
- [“Changing a fuse” on page 92](#)
- [“Using diagnostic tools” on page 94](#)
- [“Troubleshooting hardware problems” on page 96](#)
- [“Troubleshooting error messages” on page 98](#)
- [“Reporting problems” on page 101](#)

Routine maintenance

About this topic

This topic provides guidelines for periodic routine maintenance that you should perform.

Preventive maintenance is an important part of keeping the PlateLoc Sealer running smoothly and error free. To schedule the annual preventive maintenance service, contact Agilent Automation Solutions Technical Support.

IMPORTANT

You can specify a Sleep Mode for device idle times to help preserve the lifetime of the PlateLoc hotplate. For details, see [“Specifying a Sleep Mode” on page 50](#).

Routine inspection and maintenance

Periodically, perform the routine maintenance listed below. Your schedule might vary depending on the frequency of use.

Maintenance task	Schedule	Comments
Turn off the PlateLoc power and air supply when the device will be idle for 8 hours or more.	Nightly	Extended exposure to high heat will shorten the life of the device internal components.
Inspect the PlateLoc air line.	Monthly	Ensure that the tubing is in good condition and no air leaks are audible.
Clean the hot plate.	Periodically	The hot plate should be clean to ensure seal quality. See “Cleaning the hot plate” on page 89 .
Clean the touchscreen.	Periodically	Clean as needed. See “Cleaning the touchscreen” on page 91 .

Cleaning the hot plate

About this topic

This topic explains how to clean the hot plate inside the PlateLoc Sealer. Although the hot plate is coated with non-stick material, residual seal material and dirt can collect on the hot plate over time and reduce seal quality. To ensure quality seals, you should check the hot plate and clean it if necessary.

Before you start

WARNING

The hot surfaces in the PlateLoc Sealer can cause a burn injury. Use care when accessing the PlateLoc interior after the device is warmed up. Do not touch the PlateLoc Sealer or pry open the door while it is in operation. Do not reach into the PlateLoc Sealer when it is warmed up to a high temperature. Do not touch the hot plate with your bare hands.

WARNING

A freshly sealed microplate might still be hot from the sealing process. To prevent potential injury, use caution when removing a sealed microplate from the PlateLoc Sealer.

CAUTION

Using cleaning products other than those specified can damage the hot plate surface. Use only the specified cleaning products.

CAUTION

Excess fluid can react with and damage the hot plate coating. Do not spray the cleaning fluid directly onto the hot plate or any part of the PlateLoc Sealer.

Make sure you have the following:

- Ammonia-based cleaner
- HotPlate Cleaning Kit (Agilent, P/N G5561-67006)

Procedure

To clean the hot plate:

- 1 Turn on the PlateLoc Sealer.
- 2 Turn on the air to open the PlateLoc door.
- 3 *Gas-Purging PlateLocs only.* Turn off the argon source (house or cylinder).

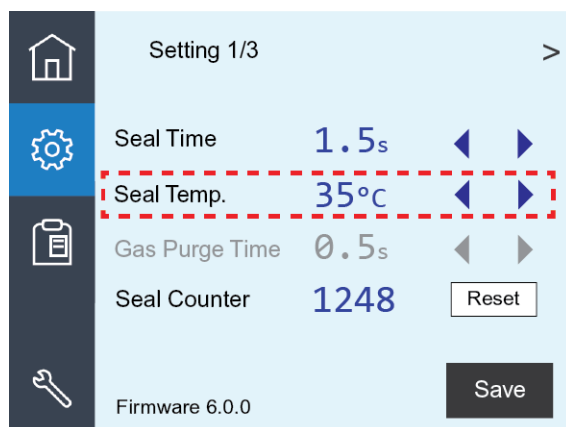
8 Maintenance and troubleshooting

Cleaning the hot plate

- 4 Warm up the hot plate, as follows:

Note: Warming up the hot plate softens any seal material that may be present and can facilitate the cleaning process.

- a On the touchscreen, press  to display the Settings 1/3 page.
- b Set the **Seal Temp** to a value from 30 to 40 °C.



- c Press **Save** to save the new Seal Temp value.
- d Press  to return to the Home page. A status message appears at the top of the page, indicating that the PlateLoc Sealer is warming up or cooling down to the set temperature.



- e Wait for the temperature to reach 30–40 °C.
- 5 Turn off the power and air-supply.
- 6 Remove the power cable, serial cable, and air supply hose.
- 7 Place the PlateLoc Sealer in a position, on its side, for example, where it is comfortable to see the hot plate clearly.
Note: Using a flashlight might help.
- 8 Dampen the heavy-duty dish wand (from the kit) with a small amount of the ammonia-based cleaner.
- 9 Vigorously scrub the bottom of the hot plate, including the corners, with the dish wand to remove residual seal material and dirt.

- 10 Wipe the hot plate with an industrial wipe, included in the cleaning kit. Visually inspect the hot plate to ensure that no seal material or debris remains. If it is not clean, dampen the wire brush (from the kit) with the ammonia-based cleaner and vigorously brush the entire surface of the hot plate, including the corners.
- 11 Wipe the hot plate with the an industrial wipe, included in the cleaning kit.
- 12 Inspect the hot plate to ensure it is clean. If residual seal or dirt remains, repeat [steps 8](#) through [steps 11](#).

Related information

For information about...	See...
Turning on the PlateLoc power	"Turning on and off the power" on page 42
Turning on the air	"Turning on and off the air" on page 43
Setting the sealing temperature	"Setting the sealing parameters" on page 72

Cleaning the touchscreen

Before you start

WARNING

The hot surfaces in the PlateLoc Sealer can cause a burn injury. Use care when accessing the PlateLoc interior after the device is warmed up. Do not touch the PlateLoc Sealer or pry open the door while it is in operation. Do not reach into the PlateLoc Sealer when it is warmed up to a high temperature.

CAUTION

Any fluid that gets between the touchscreen and the and the screen frame can damage the device. Do not use fluid cleaners on the touchscreen.

Make sure you have a clean, lint-free cloth.

Procedure

To clean the touchscreen:

- 1 Turn off the PlateLoc power.
- 2 Gently wipe the touchscreen with the lint-free cloth.
- 3 Inspect for small particles that might be caught between the screen and the screen frame. To remove excess debris from this area, contact Agilent Automation Solutions Technical Support to schedule a Preventive Maintenance.

Related information

For information about...	See...
Tilting and stowing the touchscreen	“Tilting or stowing the touchscreen” on page 47
Adjusting the touchscreen contrast	“Adjusting the touchscreen brightness” on page 49

Changing a fuse

Before you start

WARNING

To prevent potential injury or equipment damage, disconnect the instrument power, air, and communication cables before performing the following procedure.

CAUTION

A blown fuse can indicate more serious problems. If the new fuse blows after replacement, contact Agilent Automation Solutions Technical Support.

CAUTION

Use only the specified fuse type for replacement. Using an incorrect fuse can damage the device.

Ensure that you have the following:

- Specified fuse ([“Electrical requirements” on page 28](#))
- Flathead screwdriver

Procedure

To replace the fuse in the power switch:

- 1 Turn off the air source and power to the PlateLoc Sealer. Unplug the power cable from the rear panel connector.
- 2 At the rear panel power switch enclosure, use a small flat-head screwdriver (2.5 mm) to pry open the tab at the top of the enclosure and open the enclosure cover.

Using diagnostic tools

Before you start

When running test seal cycles to diagnose problems, ensure that you use microplates that are new or in good condition.

About using the PlateLoc touchscreen

When diagnosing problems with the PlateLoc Sealer, you can use the functions available on the touchscreen menus. For a description of these controls and indicators, see [“PlateLoc touchscreen interface” on page 104](#).

WARNING

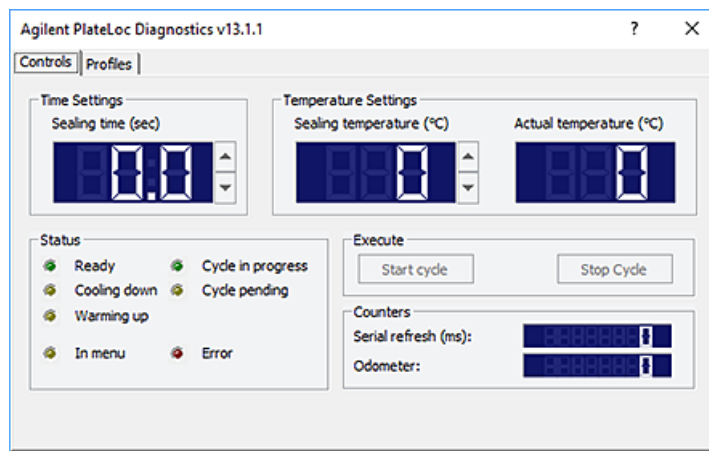
Unauthorized use of the touchscreen Service menu can expose you to additional safety hazards and result in potential injury and equipment damage. The Service menu is for Agilent service personnel only.

Using PlateLoc Diagnostics

You can use the functions in the PlateLoc Diagnostics Controls tab to set sealing parameters and monitor the seal cycle progress when diagnosing PlateLoc problems. Using controls in this tab is equivalent to using the functions on the touchscreen.

To access the diagnostic tools:

- 1 Initialize the profile in PlateLoc Diagnostics. For details, see [“Initializing the device” on page 67](#).
- 2 Click the **Controls** tab.



For a description of these controls and indicators, see [“PlateLoc Diagnostics controls and indicators” on page 112](#).

Related information

For information about...	See...
Tilting and stowing the touchscreen	"Tilting or stowing the touchscreen" on page 47
Using the touchscreen to set the sealing parameters	"Setting the sealing parameters" on page 72

Troubleshooting hardware problems

Refer to the following table to resolve common errors. If your particular issue is not in the table, or if the recommended steps do not solve your problem, see [“Reporting problems” on page 101](#).

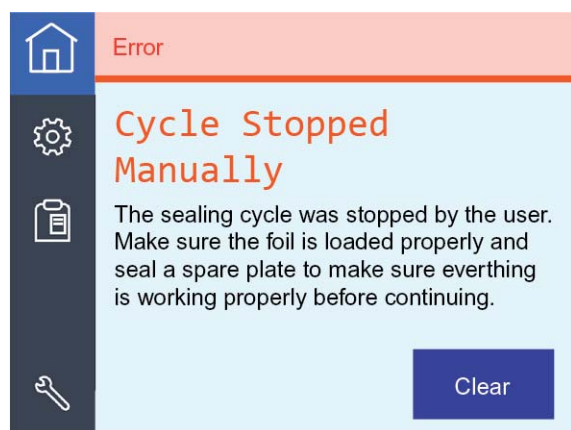
Problem	Cause	Solution
The PlateLoc does not turn on. (The touchscreen back light does not turn on.)	Your lab does not meet the electrical requirements.	Make sure your lab meets the electrical requirements. See “Laboratory requirements” on page 25 .
	The PlateLoc Sealer is not connected to the power source.	Connect the PlateLoc Sealer to the power source. See “Connecting the power source” on page 33 .
	The fuse is blown.	See “Changing a fuse” on page 92 .
The touchscreen does not display text.	The PlateLoc Sealer is not connected to the power source.	Connect the PlateLoc Sealer to the power source. See “Connecting the power source” on page 33 .
	The PlateLoc Sealer is not turned on.	Turn on the PlateLoc Sealer. See “Turning on and off the power” on page 42 .
	The touchscreen contrast is set too low.	Adjust the touchscreen contrast setting. “Adjusting the touchscreen brightness” on page 49 .
	The touchscreen is damaged.	Contact Agilent Automation Solutions Technical Support.
A hissing sound can be heard.	A leak is present in the air or argon connections.	Check the air connections at the PlateLoc Sealer and the source (house, cylinder, or pump). If applicable, check the argon connections at the PlateLoc Sealer and the source (house or cylinder). For assistance, contact Agilent Automation Solutions Technical Support.
The seal cycle does not start and an error message is displayed.	The cause of the error is described on the touchscreen.	See “Troubleshooting error messages” on page 98 for possible solutions.
The seal does not apply to the microplate as well as it used to.	Excess seal material is stuck to the hot plate inside the sealing chamber.	Clean the hot plate. For cleaning instructions, see “Cleaning the hot plate” on page 89 .
	The sealing parameters require optimization.	See “Conducting a seal optimization test” on page 83 .
	The hot plate is damaged.	Contact Agilent Automation Solutions Technical Support.

Problem	Cause	Solution
The microplate is stuck to the heated metal plate (hot plate) inside the sealing chamber or tends to fall onto the stage after the seal cycle.	Excess seal material is stuck to the hot plate inside the sealing chamber.	Clean the hot plate. For cleaning instructions, see “Cleaning the hot plate” on page 89 .
The seal cannot be pulled out from the slot on the back of the PlateLoc.	The seal is stuck inside the PlateLoc Sealer.	To remove the seal: 1 Turn off the air and power cycle the PlateLoc Sealer. 2 On the back of the PlateLoc Sealer, push down the red button to open the seal gripper inside the device. 3 Pull the seal out of the seal-entry slot. 4 Cut off tattered or folded edges. To re-insert the seal, see “Loading and unloading a roll of seal” on page 51. If this procedure does not resolve the problem, contact Agilent Automation Solutions Technical Support. IMPORTANT Attempting to remove stuck seal by force will result in broken pieces of seal inside the device, which will cause errors.
A roll of aluminum seal continues to have slack after a seal cycle.	An internal air pressure adjustment may be required.	Contact Agilent Automation Solutions Technical Support.

Troubleshooting error messages

This topic describes the error messages that may be displayed on the PlateLoc touchscreen, the causes of the errors, and ways to resolve the errors.

Figure Example of error message on the PlateLoc touchscreen



To resolve an error message:

- 1 Locate the error message in the following table and perform the recommended steps to resolve the problem.
- 2 Press **Clear** on the touchscreen.

If your particular error is not in the table, or if the recommended steps do not solve your problem, see ["Reporting problems" on page 101](#).

Error message	Cause	Solution
Actuator Time Out	A sensor or the actuator failed.	Make sure the seal material is properly loaded. Seal a spare microplate to make sure the PlateLoc Sealer is working properly before continuing.
	The air pressure inside the PlateLoc Sealer has dropped below 80 psi.	Check the following: - Air pressure at the source (house, cylinder, or pump) meets the requirements. See "Laboratory requirements" on page 25. - Air line and air connection is free of leaks. <i>Gas-Purging PlateLoc</i>. Check that the argon is not connected to the AIR IN fitting.
Cutter Not Down	The seal-cutting blade inside the device is out of alignment.	Contact Agilent Automation Solutions Technical Support.

Error message	Cause	Solution
Cycle Stopped Manually	The operator pressed Stop to terminate the seal cycle in progress.	Remove the microplate. Ensure the seal is loaded properly and seal a spare microplate to make sure the PlateLoc Sealer is still working properly.
	Dirt on the Run button caused the cycle to stop.	Clean the touchscreen and retry the operation.
Door Close	The door was unable to close after you started the seal cycle or run.	Check for obstacles (for example, under the door hinge) that are preventing the door from closing.
	The door was opened while the seal cycle was in progress.	Remove the microplate and restart the seal cycle.
	The door sensor is broken.	Contact Agilent Automation Solutions Technical Support.
Gripper Plate Vacuum	The gripper inside the PlateLoc Sealer was unable to hold the seal material, and the seal material might be jammed.	To remove the seal: 1 Turn off the air and power cycle the PlateLoc Sealer. 2 On the back of the PlateLoc Sealer, push down the red button to open the seal gripper inside the device. 3 Pull the seal out of the seal-entry slot. 4 Cut off tattered or folded edges. To re-insert the seal, see "Loading and unloading a roll of seal" on page 51 .
	When loading a roll of seal, you did not press the silver close-gripper button on the back of the PlateLoc Sealer to lock the seal in place.	To re-insert the seal, see "Loading and unloading a roll of seal" on page 51 .
Hot Plate Vacuum	The hot plate vacuum was unable to hold the seal material. Small pieces of seal material might have fallen to the bottom of the sealing chamber.	Turn off the PlateLoc Sealer. Wait for the PlateLoc Sealer to cool down to room temperature. Open the door and check for seal material at the bottom of the sealing chamber. Seal a spare microplate. If the same error message is displayed, reload the seal. See "Loading and unloading a roll of seal" on page 51 .
	Excess seal material is stuck to the hot plate inside the sealing chamber.	Clean the hot plate. For cleaning instructions, see "Cleaning the hot plate" on page 89 .

8 Maintenance and troubleshooting

Troubleshooting error messages

Error message	Cause	Solution
Insufficient Air Pressure	The air pressure inside the PlateLoc Sealer is below 80 psi.	Make sure the air pressure at the source (house, cylinder, or pump) meets the requirements. See "Laboratory requirements" on page 25. If the air pressure at the source is sufficient, but the air pressure inside the PlateLoc Sealer is still too low (as shown on the touchscreen), check the air connection for leaks. <i>Gas-Purging PlateLoc.</i> Check that the argon is not connected to the AIR IN fitting.
Insufficient Vacuum Pressure	The vacuum pressure generated by the air source is not sufficient to hold down the seal inside the sealing chamber.	Contact Agilent Automation Solutions Technical Support.
Machine Overheating	The temperature of the hot plate is above acceptable limits.	Monitor the temperature and wait for the hot plate to cool down. If the temperature continues to rise, turn off the PlateLoc Sealer. Contact Agilent Automation Solutions Technical Support.
Memory Access	An error was encountered when accessing the memory.	Restart the PlateLoc Sealer.
Memory Initialization	The PlateLoc Sealer found a memory error during startup and all parameter settings have been reset to the default values.	Contact Agilent Automation Solutions Technical Support.
No Plate in Holder	No microplate was detected on the plate stage.	Load the microplate and start the seal cycle.
Serial Communications	The serial communications buffer has been overloaded.	Contact Agilent Automation Solutions Technical Support.
Temperature Sensors	The temperature sensors are reading conflicting values.	Restart the PlateLoc Sealer.
Temperature Sensor Settings	The temperature sensors are not configured properly. The sensors are not enabled.	Contact Agilent Automation Solutions Technical Support.
Transfer Plate Vacuum	The seal is not positioned correctly inside the PlateLoc Sealer.	Reload the seal. See "Loading and unloading a roll of seal" on page 51 for instructions. If you are unable to pull the seal out, contact Agilent Automation Solutions Technical Support.

Reporting problems

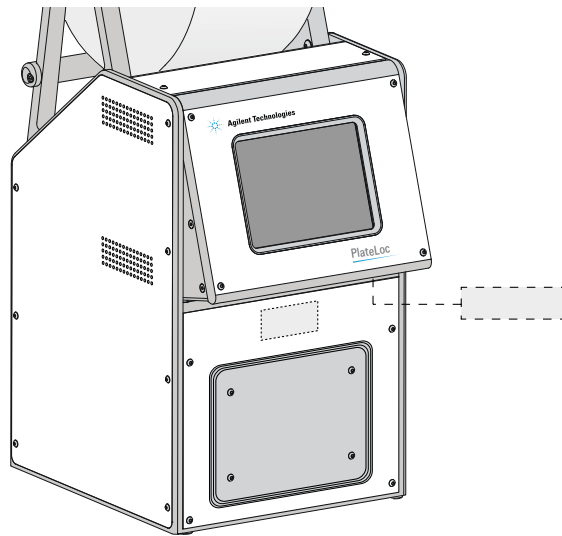
Contacting technical support

If you find a problem with the PlateLoc Sealer, contact Agilent Automation Solutions Technical Support. For contact information, go to <https://www.agilent.com/en/contact-us/page>.

Reporting hardware problems

When contacting Agilent Technologies, make sure you have the serial number of the device ready. You can locate the serial number in two places:

- On the front of the PlateLoc Sealer, below the fully tilted touchscreen



- On the back of the device

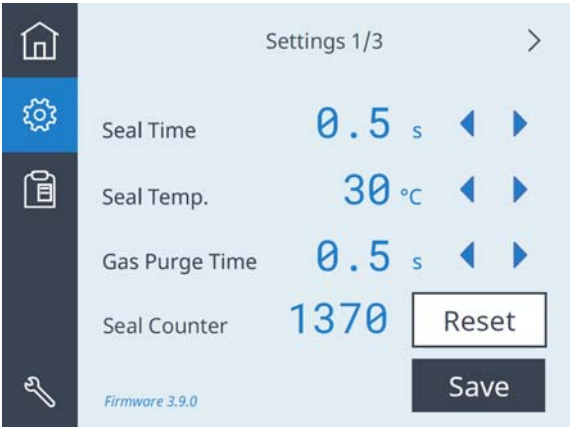
Reporting software problems

When you contact Technical Support, make sure you provide the following:

- Short description of the problem
- Relevant software version number (for example, automation control software, diagnostics software, ActiveX control software, and firmware)
- Error message text (or screen capture of the error message dialog box)
- Relevant files, such as log files

To find the firmware version number:

- 1 Turn on the PlateLoc Sealer.
- 2 On the touchscreen, press  to display the **Settings** pages.



- 3 Locate the **Firmware** version number in the lower left corner of the touchscreen.

Reporting user guide problems

If you find a problem with this user guide or have suggestions for improvement, send your comments in an email to documentation.automation@agilent.com.

Related information

For information about...	See...
Diagnostics	"Using diagnostic tools" on page 94
Potential hardware problems	"Troubleshooting hardware problems" on page 96
Error messages	"Troubleshooting error messages" on page 98



A Quick reference

This appendix provides a quick reference to the following:

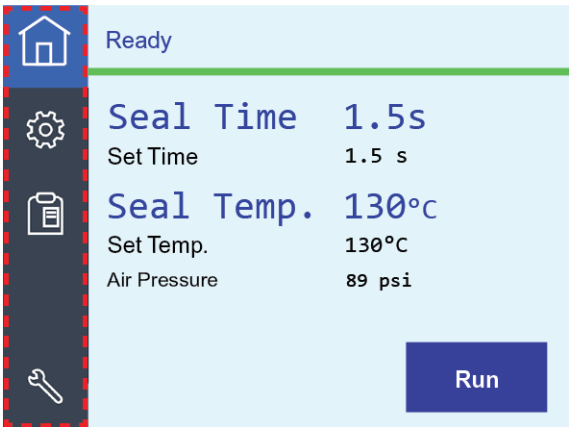
- [“PlateLoc touchscreen interface” on page 104](#)
- [“PlateLoc Diagnostics controls and indicators” on page 112](#)

PlateLoc touchscreen interface

The section describes the following touchscreen components:

- [Navigation pane](#)
- [Home page](#)
- [Settings pages](#)
- [Presets page](#)

Navigation pane

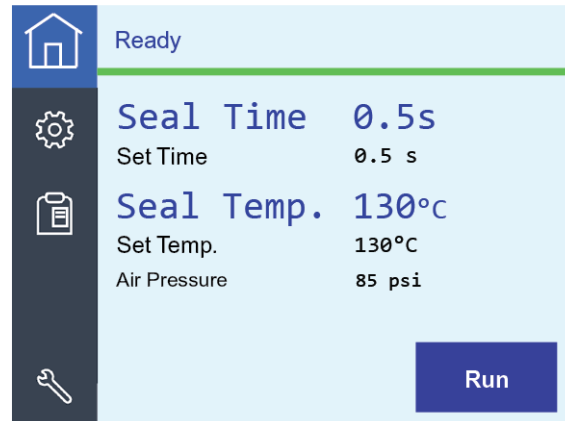


Icon	Description
	Displays the Home page.
	Displays the Settings pages, which enable you to adjust sealing parameters and view information about the device.
	Displays the Preset page, which enables you to select from a list of saved plate-sealing methods.
	<i>Agilent factory and service personnel only.</i> Displays a keypad that authorized Agilent personnel use to display the PlateLoc service pages to set up the device and troubleshoot problems.

WARNING

Using the commands in the Service pages can expose you to potential injury and cause equipment damage. The Service pages are for use by Agilent factory and service personnel only.

Home page

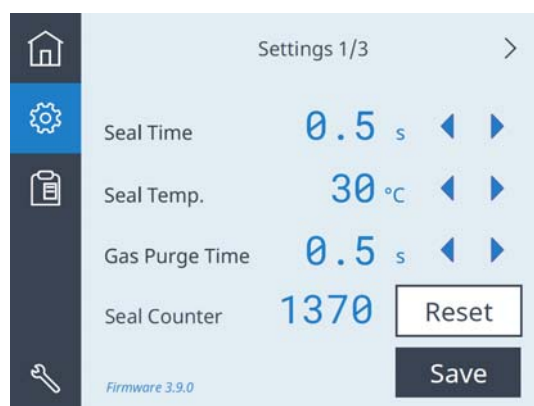


Control or indicator	Description
Status bar	Spans the top of the page and displays messages about the PlateLoc status. Possible values are: <i>Ready</i>. The PlateLoc is within range of the specified Set Temp and is ready for a run. <i>Warming Up</i>. The PlateLoc is in the process of warming up to the specified Set Temp. <i>Cooling Down</i>. The PlateLoc is in the process of cooling down to the specified Set Temp. <i>In progress</i>. The PlateLoc is in the process of sealing a microplate. <i>Error</i>. The PlateLoc has encountered an error during the seal cycle.
Seal Time (s)	Displays the time remaining (seconds) in the current seal cycle. <i>Note:</i> The seal time counts down when the seal cycle starts.
Set Time (s)	Displays the duration (seconds) that the hot plate will be in contact with the seal material and the microplate, as specified in the Settings pages.
Seal Temp (°C)	Displays the current temperature (°C) of the hot plate. - The text turns blue when the hot plate temperature is within the Set Temp run temperature range. - The text is grayed when the hot plate temperature is above or below the Set Temp. <i>Note:</i> The actual temperature of the sealing surface does not match the touchscreen Seal Temp readout. The touchscreen readout displays the temperature as measured on the opposite side of the hot plate sealing surface.
Set Temp (°C)	Displays the temperature (°C) setting specified in the Settings pages.

Control or indicator	Description
Air Pressure	Displays the device regulated air pressure (psi). The regulated air pressure should be approximately 0.599–0.62 MPa (87–90 psi).
RUN/STOP	Starts the seal cycle or stops the seal cycle in progress. <i>Note:</i> When a seal cycle is in progress, the button changes to STOP.

Settings pages

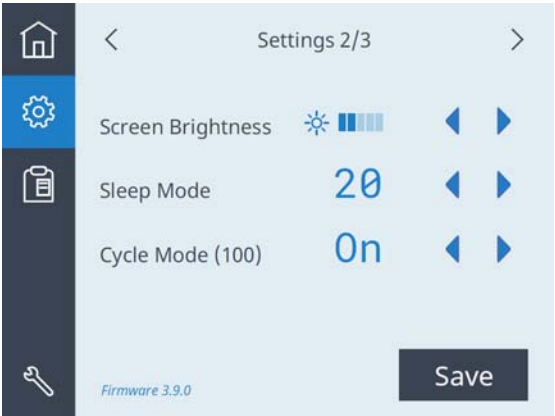
Settings 1/3



Control or indicator	Description
Seal Time (s)	Sets the amount of time (seconds) the hot plate will be in contact with the sealing material and the microplate. Press ◀ or ▶ to adjust the value down or up in 0.5-second increments. Default: 0.5 s Range: 0.5 to 12.0 s
Seal Temp (°C)	Sets the temperature (°C) of the hot plate when the seal cycle starts. Press ◀ or ▶ to adjust the value down or up in 0.5 °C increments. Default: 20 °C Range: 20.0 to 200.0 °C

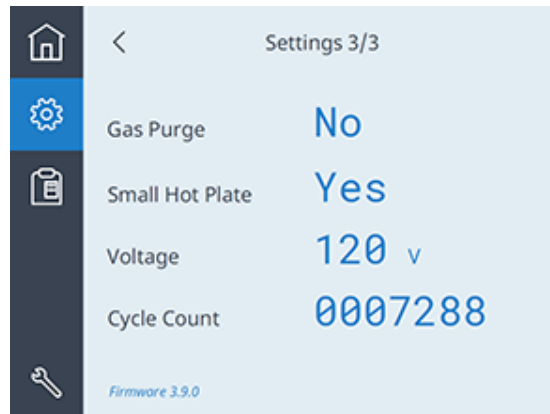
Control or indicator	Description
Gas Purge Time (s)	<i>Available for Gas-Purging PlateLoc only.</i> Sets the amount of time (seconds) the microplate is exposed to argon before the microplate is sealed. Press ◀ or ▶ to adjust the value down or up in 0.5-second increments. Default: 0.5 s Range: 0.0 to 25.0 s
Seal Counter	Displays the number of sealing cycles that have occurred since the last time the Reset button was pressed.
Reset	Resets the Seal Counter to 0.
Save	Saves changes to the Seal Time, Seal Temp, and, if applicable, the Gas Purge Time values.
Firmware version	Displays the version of the installed firmware for the device.

Settings 2/3



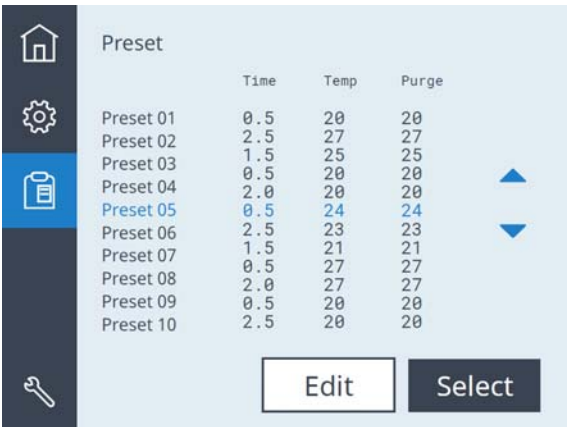
Control or indicator	Description
Screen Brightness	Sets the brightness of the touchscreen display. As you reduce the brightness, the text in the touchscreen dims. To adjust the brightness, press ◀ or ▶.
Sleep Mode	Turns on or off the Sleep Mode. When Sleep Mode is on, sets the time (minutes) to wait after a seal cycle completes before cooling down the device when not in use. Press ◀ or ▶ to select one of the following: • 20 minutes • 60 minutes • 300 minutes • Off. Turns off the Sleep Mode.
Cycle Mode (100)	Turns on or off the Cycle Mode. When set to On, the Cycle Mode places 100 seals on the current microplate. <i>Note:</i> This feature is typically used only by Agilent factory and service personnel. Press ◀ or ▶ to turn On or Off this feature.

Settings 3/3



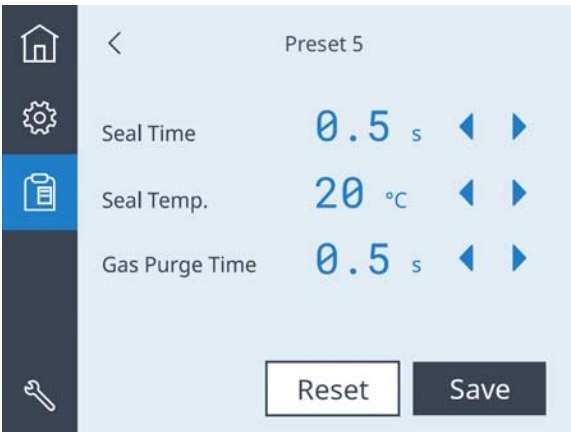
Indicator	Description
Gas Purge	Displays No or Yes to indicate if the device is a Gas-Purging model.
Small Hot Plate	Displays No or Yes to indicate if the device is fitted with a small hot plate.
Voltage	Displays the AC voltage model of the device, which is one of the following: 120 V. The 100–120 V model. 230 V. The 200–240 V model.
Cycle Count	Displays a running total of all the seal cycles that this device has run.

Presets page



Control or indicator	Description
Preset 01 – 10	Displays the list of saved plate sealing methods that you can use.
Edit	Displays the Preset edit page where you can modify the seal time and temperature values for a highlighted preset. Press ▲ or ▼ to highlight the desired row in the table.
Select	Loads the settings of the highlighted Preset row to the Home page.

Figure Example of Preset edit page



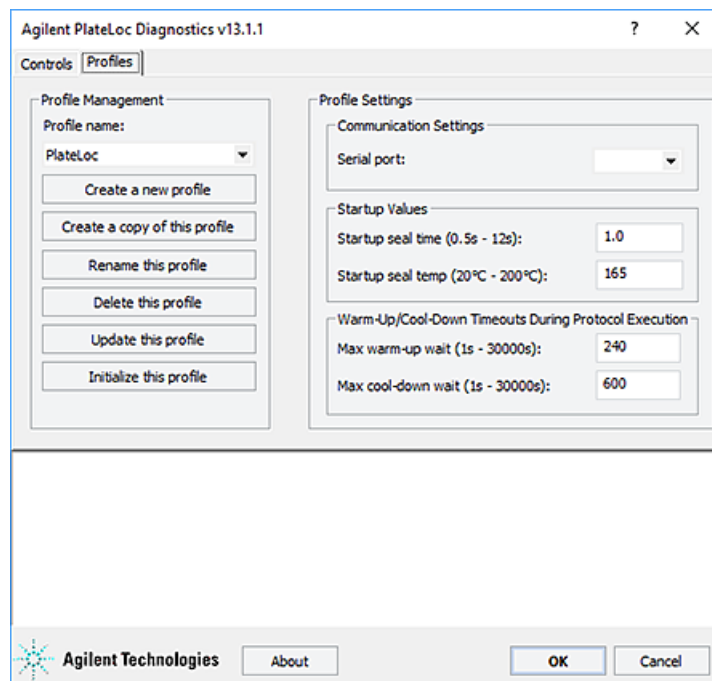
Control or indicator	Description
Seal Time (s)	Sets the amount of time (seconds) the hot plate will be in contact with the sealing material and the microplate. Press  or  to adjust the value down or up in 0.5-second increments. Default: 0.5 s Range: 0.5 to 12.0 s
Seal Temp (°C)	Sets the temperature (°C) of the hot plate when the seal cycle starts. Press  or  to adjust the value down or up in 0.5 °C increments. Default: 20 °C Range: 20.0 to 200.0 (°C)
Gas Purge Time	<i>Gas-Purging PlateLoc only.</i> Sets the amount of time (seconds) the microplate is exposed to argon before the microplate is sealed. Click the left or right arrow to adjust the value down or up in 0.5-second increments. Default: 0.5 s Range: 0.0 to 25.0 s
Reset	Resets the Preset settings to the default values.
Save	Saves the changes to the specified Preset.

Related information

For information about...	See...
Adjusting the contrast of the touchscreen	"Adjusting the touchscreen brightness" on page 49
Seal parameters	"Setting the sealing parameters" on page 72
PlateLoc Diagnostics	"PlateLoc Diagnostics controls and indicators" on page 112

PlateLoc Diagnostics controls and indicators

Profiles tab



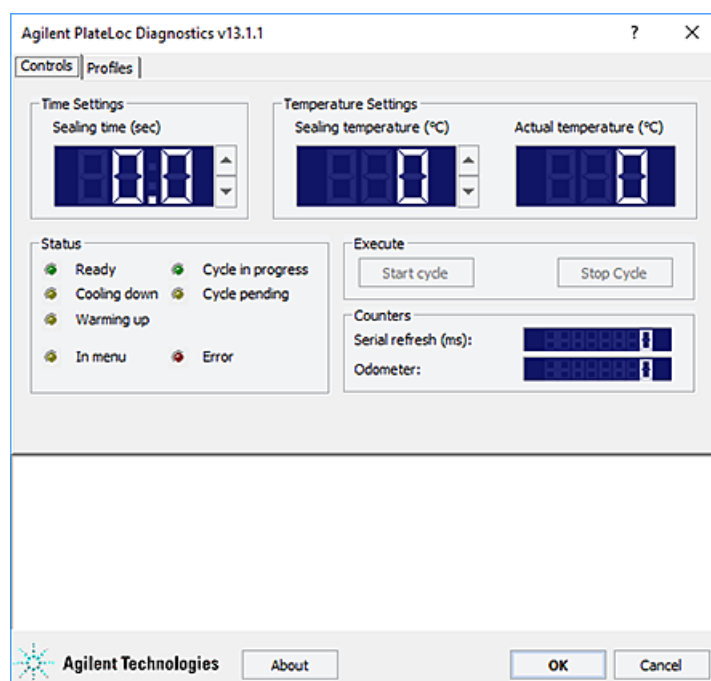
Profile Management area

Command	Description
Profile name	Displays the selected profile, and allows you to select from the list of available profiles.
Create a new profile	Displays the Create Profile dialog box that enables you to create a new profile.
Create a copy of this profile	Creates a duplicate copy of the selected profile with the name, Copy of <profile name>.
Rename this profile	Displays the Rename Profile dialog box that enables you to rename the selected profile.
Delete this profile	Deletes the selected profile.
Update this profile	Saves changes to the selected profile.
Initialize this profile	Initiates communication with the device using the selected profile.

Profile Settings area

Parameter	Description
Communication Settings Serial port	The port that connects the controlling computer to the PlateLoc Sealer.
Startup Values	
Startup seal time (0.5s – 12s)	Specifies the default sealing duration (seconds). The PlateLoc Sealer defaults to this sealing time value every time you turn on the device or when you initialize the device.
Startup seal temp (20 – 200 °C)	Specifies the default sealing temperature (°C). The PlateLoc Sealer defaults to this sealing temperature value every time you turn on the device or when you initialize the device.
Warm-Up/Cool-Down Timeouts During Protocol Execution	
Max warm-up wait (1s – 30000s)	Specifies the amount of time (seconds) the PlateLoc Sealer should wait for the warm-up before it times out. The wait period starts when you start the protocol run.
Max cool-down wait (1s – 30000s)	Specifies the amount of time (seconds) the PlateLoc Sealer should wait for the cool-down before it times out. The wait period starts when you start the protocol run.

Controls tab



Time Settings area

Parameter	Description
Sealing time (sec)	Displays and sets the amount of time (seconds) the hot plate is in contact with the sealing material and the microplate.

Temperature Settings area

Control or indicator	Description
Sealing temperature (°C)	Displays and sets the temperature (°C) of the PlateLoc hot plate when the seal cycle starts.
Actual temperature (°C)	Displays the current temperature of the PlateLoc hot plate. <i>Note:</i> The actual temperature of the sealing surface does not match the readout. The readout displays the temperature as measured on the opposite side of the hot plate sealing surface.

Status area

Indicator	Description
Ready	Indicates that the PlateLoc Sealer is within the specified sealing temperature range and is ready for a run.
Cooling down	Indicates that the PlateLoc Sealer is in the process of cooling down to the specified sealing temperature.
Warming up	Indicates that the PlateLoc Sealer is in the process of warming up to the specified sealing temperature.
Cycle in progress	Indicates that the PlateLoc Sealer is in the process of sealing a microplate.
Cycle pending	Indicates that the PlateLoc hot plate is warming up or cooling down.
In menu	Indicates that another operator is setting parameters or using controls at the touchscreen.
Error	Indicates that one or more errors have occurred.

Execute area

Command	Description
Start cycle	Starts a seal cycle. <i>Note:</i> Use the Start cycle command for sealing a single microplate.
Stop cycle	Stops the a seal cycle in progress.

Counters area

Indicator	Description
Serial refresh (ms)	Displays the frequency at which the controlling computer reads information from the PlateLoc Sealer and updates the status in the Controls tab.
Odometer	Displays the number of seal cycles that the PlateLoc Sealer has performed.

Related information

For information about...	See...
Creating a profile	"Creating and editing profiles" on page 64
How to open PlateLoc Diagnostics	"Opening PlateLoc Diagnostics" on page 62
Initializing a profile	"Initializing the device" on page 67
Seal parameters	"Setting the sealing parameters" on page 72
Touchscreen menus	"PlateLoc touchscreen interface" on page 104

In This Book

This guide describes the following items for the G5585B PlateLoc Thermal Microplate Sealer:

- Safety guidelines
- Components description
- Unpacking and installation
- Setting up the device
- Sealing microplates
- Optimizing seal quality
- Routine maintenance and troubleshooting

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