ESCHMANN



Little Sister SES 3000B/ SES 3020B Vacuum Autoclave

User Manual

CE
2797

Thank you for choosing Eschmann

Eschmann design, manufacture and supply a range of market leading products including benchtop autoclaves, accessories, washer disinfectors and surgical suction.

For further information visit our website: www.eschmann.co.uk.

This manual contains instructions for use applicable to the Eschmann SES 3000B and SES 3020B autoclaves.

Please read the manual before installing or using the product for the first time. Keep the manual handy for quick reference. Always make sure that the manual is available for the next user/owner of the product.

The product(s) described by this manual must only be operated and used by qualified personnel trained in the use of this equipment. Contact Eschmann with your training requirements.

Pay particular attention to the safety notes, warnings and cautions provided in the text, and also to those displayed on the product labels.

This product must be used, installed and maintained in accordance with the procedures given in this manual. Failure to do so could result in injury to patients and/or users, or damage to the equipment.

Eschmann products must be serviced by Eschmann or Eschmann trained engineers. Failure to do so may invalidate the warranty.

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The supplied USB memory stick contains other available language versions (requires pdf reader).

1 Safety Warnings and Usability

Comply with warnings and cautions at all times.
All users and operators must be made aware.

⚠ WARNING!

Only use the autoclave as specified in these instructions. Eschmann are not responsible for a malfunction or reduced level of protection provided by the equipment when not used as specified. Never tamper with, bypass or interfere with any of the safety features.

Only use Eschmann accessories and mains leads. Any spare parts must be supplied by Eschmann. They must be fitted in accordance with the Service Manual or instructions supplied by Eschmann, or Eschmann trained Engineers.

Be careful not to splash water on top of the autoclave. If water is poured onto the autoclave, or a leak is found, disconnect from the mains socket, dry thoroughly and allow time to dry.

Servicing and repairs must be performed by Eschmann, or Eschmann trained Engineers.

1.1 Safety checks ⚠

Contact Eschmann if any problems are found.
Do not use the autoclave until the unit is repaired.

Daily

- Run the daily test (T3). Refer to Appendix 1.
- When loading the autoclave take care not to damage the door or front face of the chamber, especially the door seal and mating face.
- Check the condition/cleanliness of the door seal.
- Check that the bacterial air filter is fitted.
- Check for any obvious escape of steam or water during a cycle.
- Drain the fresh and waste water reservoirs.

Weekly

- Run the weekly tests (T1, T2 & T3). Refer to Appendix 1.
- Check the door seal and chamber face for damage.

1.2 Potential hazards ⚠

- **HOT WATER, HOT SURFACES AND STEAM** Autoclaves operate with steam at high pressure and temperature. Take care to avoid contact with any residual steam or hot water. The Eschmann tray lifter must be used to remove Eschmann trays. Avoid contact with the hot internal surfaces of the chamber and door. Water in the waste reservoir can be very hot, take care when draining to avoid contact.
- **CYCLE SELECTION** Always select the correct cycle for the load to be processed otherwise the load may not be sterilised. Refer to Section 6. If in doubt, contact Eschmann.
- **LOAD NOT STERILISED.** If a warning screen is displayed, the load must be treated as non-sterile. Sterilise the load by running the cycle again. If the load was wrapped or pouched, new packaging must be used. Refer to Appendix 2.

1.3 Limitations of use ⚠

- **DO NOT overload the autoclave. (See Appendix 2)**
- **DO NOT process hollow, porous, wrapped or implant kit loads using an N type cycle.**
- **DO NOT process liquids in this autoclave.**
- **Test cycles MUST NOT be used to process loads.**
- **Use Eschmann trays, cassettes and baskets only.**
- **DO NOT use near flammable materials or gases.**
- **If sterilising non solid metal items, consult the instrument manufacturer regarding suitability for processing in an autoclave.**
- **Items MUST be cleaned before sterilisation otherwise sterilisation may be compromised.**
- **Only process one dental implant kit at a time (See Appendix 2 and Section 5)**

1.4 Electrical safety ⚠

- This equipment must be earthed.
- Only use the supplied Eschmann mains power cable.
- Eschmann recommend the use of a suitable RCD.
- Always switch the autoclave off and disconnect from the mains electrical supply before renewing fuses, checking and cleaning the autoclave.
- **DO NOT** service this autoclave internally.

1.5 General safety ⚠

- DO NOT use the autoclave if the door seal, bacterial filter or covers are damaged, loose or missing.
- DO NOT place heavy items or containers with liquids (e.g. cups etc.) on top of the autoclave.
- DO NOT cover the ventilation grills.
- Ensure the fresh water reservoir fill cap is closed before using the autoclave.
- DO NOT press the touch screen too hard, or use sharp objects to press the screen.
- DO NOT use tap water or cleaning products containing chlorides, chlorine, acids or other corrosive substances to clean the chamber, chamber face or door seal.
- DO NOT use flammable liquids, abrasive powders, or solutions containing chlorine to clean the autoclave.
- Potentially contaminated waste materials produced during cleaning and disinfection should be handled in accordance with local procedures and national legislation for the disposal of potentially contaminated waste.

1.6 Warnings, cautions & notes

Various warnings, cautions and notes are made throughout this manual. Each of these carries a special meaning and should be read carefully.

⚠ A WARNING is given when the safety of the patient or user may be involved. Disregarding this information could result in injury to the patient or user.

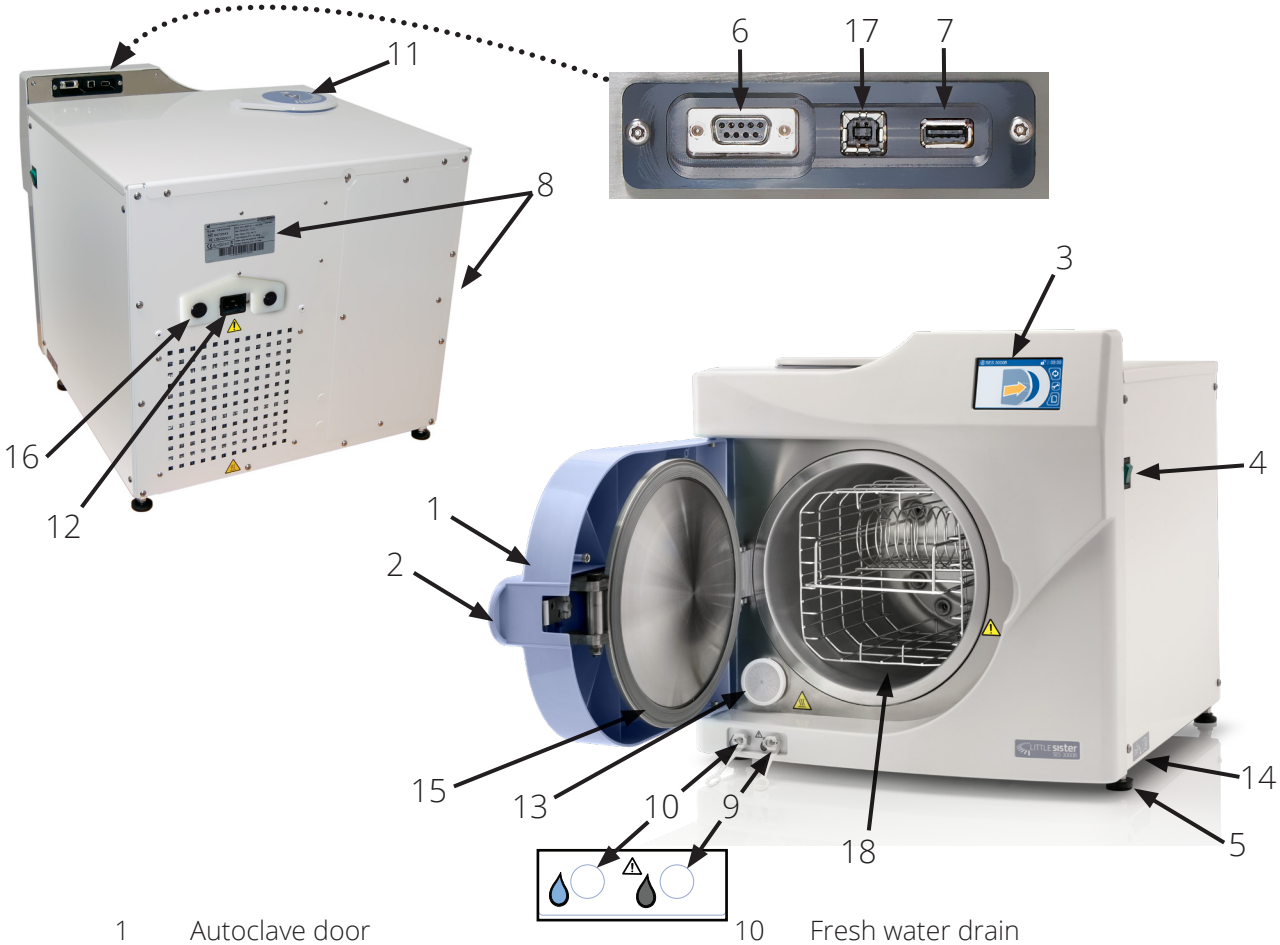
A CAUTION is given when special instructions must be followed. Disregarding this information could result in permanent damage to the product.

A NOTE provides specific information that makes important instructions clear.

1.7 Usability

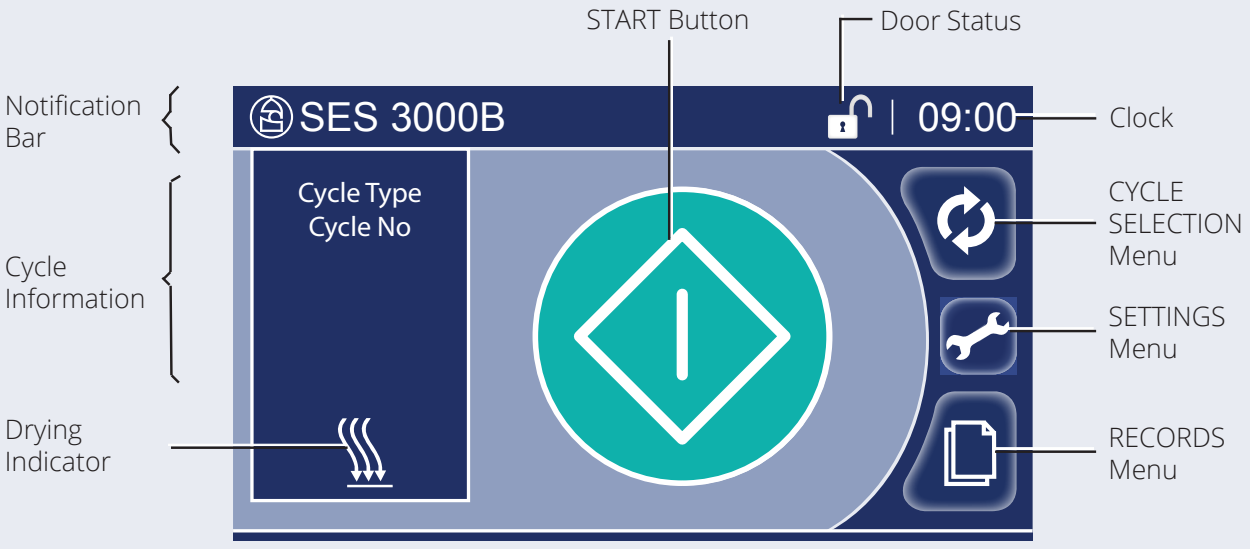
Intended User	Trained medical professionals. The product is not used by the patient.
Medical Purpose	Sterilisation of medical instruments and porous items using saturated steam.
Contraindications	There are no direct contraindications. The autoclave does not provide direct treatment to a patient. Indirect contraindications include cycle failure, incorrect loading, incorrect cycle selection, and incorrect servicing/ repair, leading to a non sterile load. The risk of non-sterilisation has been assessed through risk management and mitigated through product design, verification/ validation product testing, and instructions for use, in accordance with the standards listed in Appendix 5. In the event of cycle failure, the autoclave is designed to alert the operator that the cycle has failed and the load is not sterilised. To ensure a sterilised load, the autoclave must be operated by trained medical staff and used in accordance with the instructions and safety warnings contained within this manual. Servicing and repairs must be performed by Eschmann, or Eschmann trained engineers.
Patient Population	The autoclave sterilises medical instruments and porous items and therefore does not provide treatment directly to a patient.
Intended use	Designed and tested for compliance to BS EN 13060, the product is a fully automatic, bench top, small steam steriliser for the sterilisation of medical instruments and porous items using saturated steam at nominal temperatures of 121°C or 134°C. The SES 3000B has a 17 litre chamber and the SES 3020B has a 23 litre chamber. Both variants are capable of B and N Type autoclave cycles, with or without drying. The product is intended for the sterilisation of the following: • Solid and hollow instruments. • Pouched/ wrapped instruments. • Porous loads. • A single dental implant kit Refer to Appendix 2 for full details of the loading requirements and capacity. Refer to Appendix 5 for Technical data. The product is intended to sterilise clean items only. The product is not suitable for sterilising liquids or pharmaceutical products. The product is not suitable for sterilising items which are not rated for steam sterilisation at the stated cycle temperatures. The product has a technical lifetime of 10 years.
Device Application	The autoclave is suitable for the sterilisation of medical instruments and porous items in the following applications: Hospitals, doctors surgeries, medical centres, dental practices, podiatry practices, veterinary practices, hair salons, and tattooists.
Device Classification	Devices specifically to be used for sterilising medical devices are classified as Class IIa, as derived from Rule 16 of Annex VIII of the EU Medical Devices Regulation 2017/745.
Frequently used functions	• Switching the autoclave on/ off • Filling, emptying and changing the water in the reservoirs • Opening and closing the door • Loading and unloading the autoclave using dental trays, cassettes and pouch racks • Selecting the cycle applicable from the load via the touchscreen display • Cycling through the menus on the touchscreen display • Starting the cycle via the touchscreen display • Selecting drying and non drying modes via the touchscreen display • Cleaning the autoclave • Replacing filters and door seals • Downloading cycle data • Running daily and weekly test cycles

Fig. 1 Main Components



1	Autoclave door	10	Fresh water drain
2	Door handle	11	Fresh water reservoir
3	Touch screen display (Fig. 2)	12	IEC Mains connection and fuses - Warning, consult manual, Section 1
4	Mains 'on/off' switch	13	Bacterial air filter
5	Adjustable foot x 4	14	Overheat RESET button (Underneath)
6	RS232 port (for data logger/ printer)	15	Door seal
7	USB host port (for USB memory stick)	16	Mains Inlet Shield
8	Serial Plate Label (rear and side)	17	Not used
9	Waste water drain - Warning, consult manual, Section 1	18	Autoclave chamber - Warning, consult manual, Section 1

Fig. 2 Typical START Screen



2 Introduction and Installation

We recommend that the autoclave is installed and commissioned by an Eschmann or Eschmann Trained Engineer. Contact Eschmann for installation, User Training and Warranty Registration.

These installation instructions do not include configuration settings that can only be made by Eschmann, or an Eschmann trained engineer.

2.1 Introduction

THE ESCHMANN SES 3000B AND SES 3020B ARE B TYPE VACUUM AUTOCLAVES.

The autoclaves differ in that the SES 3000B has a 17 litre chamber and the SES 3020B has a 23 litre chamber. Both are capable of B and N Type cycles, with and without drying.

The autoclave is intended for the sterilisation of:

- Solid and hollow instruments.
- Pouched/ wrapped instruments.
- Porous loads.
- 1 x Dental implant kit.

The autoclave has been designed in accordance with applicable standards and is suitable for the following environments: Dental, Medical, Veterinary, Hair Salons, Tattooists and Podiatry.

Note: In some regions, the screen Notification Bar for the SES 3000B may display 'SES 3000'.

2.2 Unpacking

Remove the outer packaging and all packaging pieces.

Recycle packaging in accordance with local recycling practices.

CAUTION

Always move or lift the autoclave using at least two people. Observe good manual handling techniques at all times, with hands placed under the base on each side of the autoclave.

Remove the tape securing the door and check for the following items. Some are packed inside the chamber, remove these. (Please note that contents may vary).

User Manual	Mains power cable
Drain tube	Tray carrier and tray lifter
Bubble Indicator	USB Memory Stick (Cycle Logger Application & Manuals)
Helix Test Pack	

2.3 Location

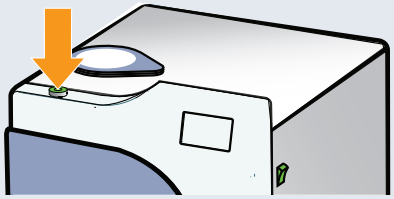
Environmental conditions must comply with those defined in Appendix 5. Technical Data.

Place the autoclave on a flat, clean, dry, level surface that is water resistant, heat resistant and suitable for the weight. Ensure that the mains plug and power switch will be easily accessible during use.

When installed, there must be a minimum working clearance of 25mm at the sides and 75mm at the rear. Vents must be clear of obstructions. Ensure that the door can be fully opened.

2.4 Levelling the autoclave

Place the supplied bubble indicator on the autoclave where shown below. This surface is inclined.





Bubble indicator is level

When the bubble indicator shows it to be level, the autoclave will be at the correct incline.

- Adjust the feet (Turn clockwise to extend) so that the bubble level indicates level from side to side.
- Adjust the front feet so that the bubble level indicates level from front to back.

Ensure that all four feet are fully in contact with the work surface. Hand tighten the locking nuts on the feet.

2.5 Mains Connection

Connect the autoclave to the mains power socket using the supplied Eschmann mains power cable.

Only use the supplied Eschmann mains power cable. DO NOT use any other mains power cable.

Eschmann recommend the use of a suitable RCD (Residual Current Device).

2.6 Information/ safety symbols

Product Safety Symbols			
or	Attention: See the instructions for use		
	Consult the instructions for use		DO NOT use tap water
	Mains input fuse rating		Potentially hot surfaces
Product Information Symbols			
	Manufacturer		Date of manufacture
SN	Serial number	REF	Catalogue number
	WEEE recycling: Do not dispose of product at end of life with other waste	MD	Medical Device
CE 2797	The CE marking of the product certifies that it complies with the EU Medical Devices Regulation 2017/745		
EU REP	EU authorised representative		

3 Controls

3.1 Touch Screen & Menu Operation

Touch screen

The autoclave must be switched on to use the touch screen.

The autoclave uses a resistive touch screen. This requires a light pressure to operate. You can use a gloved or non-gloved hand.

Use the touch screen to view and navigate all the menus and pages contained in the menu system.

Menu operation

In the menus:

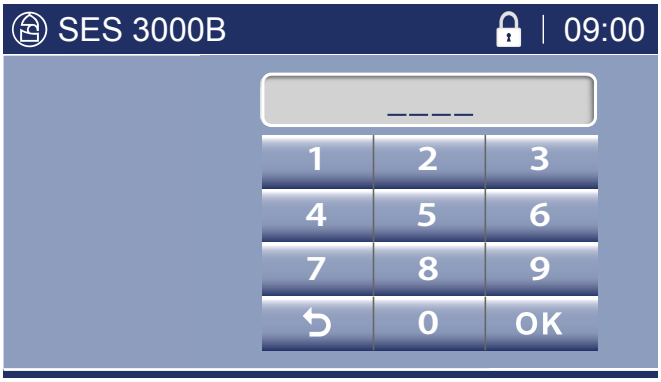
Use the up/down buttons to highlight your chosen setting in the blue area of the screen. For example, pressing the up arrow will effectively move the blue area upwards.

OK Press to accept a setting or selection

Press to return without change

Press to edit a selection

3.2 The Keypad



At points throughout the menu, whenever the keypad is displayed, you must enter the required information. For example; a PIN code (Personal Identification Number), a date, a time, a delay time, a cycle number.

Each type of keypad expects the input to be in a certain format and will prevent incorrect input.

The formats are:

PIN code	1234	four digits
Date	dd/mm/yy	day/month/year
Time (24hr clock)	hh:mm	hours/minutes
Delay time	hh:mm	hours/minutes
Cycle number	12345	five digits

Below are the details for entering a four digit PIN code, and the process is similar for all other keypads.

Type your four-digit PIN code:

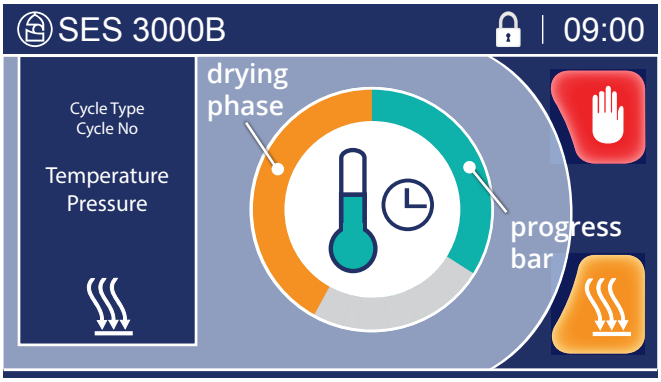
Each time a number is pressed, the flashing line (underscore) is replaced with the number typed. The line then highlights the next number.

- Press **OK** to accept the PIN code.
  - If the PIN code is accepted, the next screen will be displayed.
  - If the PIN code is not accepted the screen beeps and starts the process of entering a PIN code again.
- Press Backspace (⮌) to re-enter an incorrectly typed number. A final backspace will display the previous screen.

If your PIN code did not work:

- You may have entered it incorrectly.
- You may not have entered four digits. Pressing OK with less than four digits displayed will start the process of entering a PIN code again.
- The system may require a higher level of PIN code. For example, certain Menus and Warnings require a Manager PIN. However, the main process of running a cycle only ever requires a User PIN.

3.3 The Progress Screen

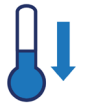


The Progress Screen indicates how the cycle is progressing; the phase of the cycle that the autoclave is completing; and the cycle information, for example, the ambient temperature and pressure.

To do this, a green circular progress bar is drawn on the screen until it is completed for the selected cycle. At this point the cycle ends.

When drying is deselected for a cycle, the progress bar does not include the (orange) drying phase.

The phases of the cycle are indicated by the following:

	Preconditioning Phase
	Sterilisation Phase
	Post Sterilisation Cooling Phase
	Drying Phase

Two-minute indication

The autoclave marks the two-minute point in the Sterilisation Phase for manual record keeping.

It displays the following, in order, to count down to the two minute mark:

The two-minute mark has been reached the moment



2 is displayed.

3.4 Notification Screens

These may be displayed before a cycle or if an error occurs and a cycle is aborted.

Complete the actions requested to continue using the autoclave.

There are three types of notification screen:

Water Management Screens	
Fill Water Reservoir	Section 4
Change The Water	Section 10
Empty Waste Reservoir	Section 10
Service Screens	Section 11
Advisory Screens	Section 12

3.5 Autoclave Manager

Appoint a staff member to be the Autoclave Manager.

The Autoclave Manager, who must be trained in the use of the autoclave, will control the use of the Autoclave. This person will be responsible for making sure that all users are regularly trained in the use and maintenance of the autoclave. Records of attendance at training must be maintained, and evidence of understanding demonstrated.

Refer to Section 14: “Security” to set up security PINS and choose a security level for the autoclave.

Note: ***REMEMBER YOUR “MANAGER” PIN CODE! A forgotten Manager PIN code will require a Service call-out to access the menus.***

4 Preparing the Autoclave

Water Quality Requirements

THE FRESH WATER RESERVOIR MUST ONLY BE FILLED WITH WATER OF AN APPROPRIATE QUALITY THAT IS LOW IN DISSOLVED SOLIDS AND HAS A LOW MICROBIAL COUNT.

We recommend the use of:

- water treated by the reverse osmosis process
- distilled water
- deionised water

- TDS (Total Dissolved Solids) to be less than 7mg/l (milligrams per litre), or 7ppm (parts per million)
- pH to be between 5.0 - 7.5
- conductivity <15 µS/cm at 20°C

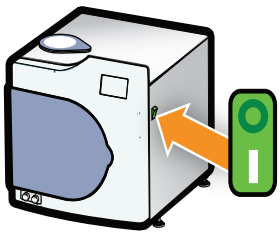
Refer to local authority requirements if in doubt.

The autoclave water quality sensor prevents operation if the water in the fresh water reservoir exceeds 30 µS/cm.

DO NOT FILL THE FRESH WATER RESERVOIR WITH TAP WATER, CHEMICALS OR CHEMICAL SOLUTIONS.

⚠ WARNING!
Be careful not to splash water on the top of the autoclave. In the unlikely event that the reservoir is overfilled, the unit is designed to overflow water onto the worktop. If water is poured onto the autoclave, or a leak is found, disconnect the autoclave from the mains socket and dry the autoclave thoroughly. Allow time to dry.

1



Switch the autoclave on



The welcome screen displays available languages. Select the language by pressing the desired language option.

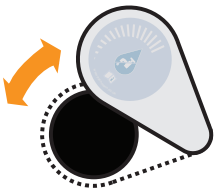
Note that the autoclave may take about one minute to initialise.

Mains Switch: Fig. 1, item 4.

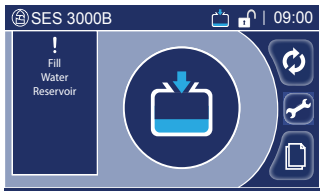
If a single language option is provided, this is used by default, and need not be selected.

The language selected is remembered on power-down.

2



Fill the fresh water reservoir, if required



The fresh water reservoir should be filled whenever this screen is displayed.



1. Rotate the fresh water reservoir fill cap on the top of the autoclave (clockwise).
2. Carefully pour in water to the level of the **RED LINE (Red rubber ring)** which indicates the **MAXIMUM FILL LEVEL.**
3. Rotate the reservoir fill cap back into the closed position. (anti-clockwise)

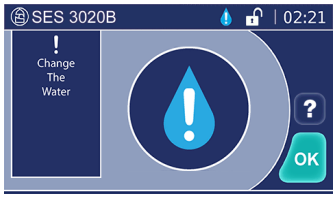
DO NOT use tap water!

Only fill the fresh water reservoir with water that meets the water quality requirements.

DO NOT fill the fresh water reservoir with chemicals or chemical solutions.

Note: You can fill the fresh water reservoir with the autoclave switched on.

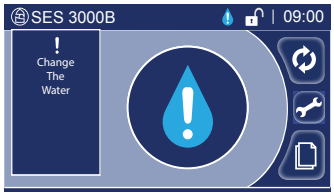
3



If this 'CHANGE THE WATER' screen is displayed, the **alert level** fresh water quality requirements have been exceeded (15µS/cm).

It is recommended to change the water to prevent reliability issues. Either drain the fresh water reservoir (Refer to Section 10) and re-fill, or chose to continue with the current water, by pressing the **OK** button.

4 Preparing the Autoclave....Continued



If this 'CHANGE THE WATER' screen is displayed, the **action level** fresh water quality requirements have been exceeded (30µS/cm).

The autoclave will not run until the fresh water reservoir has been drained (Refer to Section 10) and re-filled with water complying with the Water Quality requirements.

4



Drain the waste water reservoir, if required

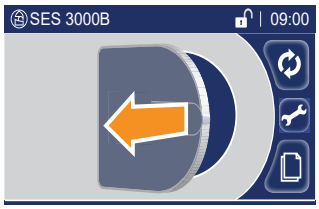
The **Waste Water Reservoir** should be drained when the 'EMPTY WASTE RESERVOIR' advisory screen is displayed. Refer to Section 10.

5



Pre-use checks:

DOOR SEAL AND BACTERIAL AIR FILTER



1. Open the door.
2. Check that the **DOOR SEAL** is clean, undamaged and free of debris.
3. Check that the **BACTERIAL AIR FILTER** is fitted. (Refer to Figure 1, pg 4)

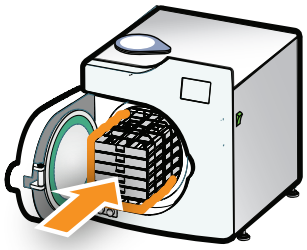
Clean the door seal and chamber face every day. Refer to Appendix 3 for the correct cleaning method.

Refer to section 11.1 to fit or change the bacterial air filter.

Refer to section 11.2 to fit or replace the door seal.

5 Loading the Autoclave

1



All items MUST be thoroughly cleaned before sterilisation, ideally in an Eschmann Instrument Washer Disinfector

All items to be sterilised MUST be prepared and loaded in accordance with Appendix 2.

Load Eschmann trays, pouch rack or porous load basket into the autoclave using the Eschmann tray lifter.

DO NOT overload or incorrectly load the autoclave.

DO NOT use non Eschmann trays, racks or baskets.

DO NOT process liquids in the autoclave.

Refer to Appendix 2.

Take care when loading.

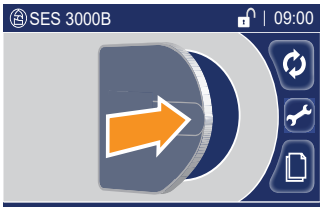
The chamber and door may be very hot.

If the load feels heavy, use the Eschmann tray lifter with two hands.

2



Close the door



Push the door fully closed.

The autoclave will lock the door automatically once the cycle is selected and started. Refer to Sections 6 and 7.

Check there are no obstructions.

Be careful not to trap your fingers when closing the door.

6 Selecting a Cycle



Cycle Selection



Press to view the Cycle Selection menu.

Use the up/down buttons to highlight your chosen cycle in the blue area of the screen. (See Cycle Chart below).

OK Press to accept.

The 134° B cycle is the factory default for each new cycle.

Always select a cycle suitable for the load.

You may be prompted to enter a PIN code. Refer to Section 3.2: "The Keypad".

Press to return without change.

TEST CYCLES:

Routine test cycles must be conducted. (Refer to Appendix 1)

You MUST run a T3 test cycle at the start of each day.

You MUST run a T1, T2 & T3 cycle (In this order) at the start of each week.

Cycle Chart

Cycle Type	Load Type						DRYING (Default Setting)
	SOLID ITEMS (Unwrapped)	SOLID ITEMS (Wrapped or Pouched)	HOLLOW ITEMS (Unwrapped)	HOLLOW ITEMS (Wrapped or Pouched)	POROUS LOADS	1 X DENTAL IMPLANT KIT (Unwrapped or wrapped)	
134 N	✓	✗	✗	✗	✗	✗	On
121 B	✓	✓	✓	✓	✓	✓*	On
134 B	✓	✓	✓	✓	✓	✓*	On
134 B 18 (18 minute hold)	✓	✓	✓	✓	✓	✓*	On
134 B+ (Extended drying)	✓	✓	✓	✓	✓	✓	On
134 B HP (Handpiece)	✓	✗	✓	✗	✗	✗	Off
T1 (Chamber integrity test)	**Test Cycles MUST NOT be used to process loads** WEEKLY: Run a T1, T2 and T3 cycle at the start of each week DAILY: Run a T3 cycle at the start of each day Refer to Appendix 1						
T2 (Air detector test)							
T3 (Steam Penetration Test)							

✓ Suitable cycle for load type ✗ **NOT** suitable cycle for load type

* Eschmann recommend the 134 B+ cycle for sterilising a Dental Implant Kit. (Refer to Appendix 2)

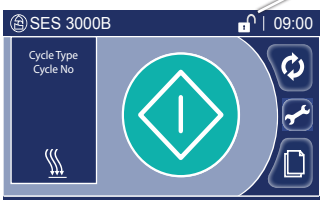
Drying can be toggled on or off at any time during a cycle. See Section 7. The ability for the user to disable drying for B type cycles can be optionally disabled by Eschmann.(With the exception of the 134 B HP cycle).

7 Starting and Running a Cycle

1



Start the cycle



The padlock symbol on screen Indicates door lock status:

door locked

door unlocked

Door lock operation is automatic.

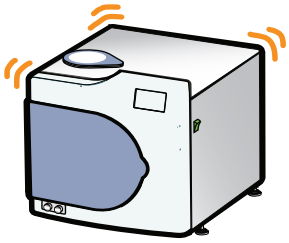
Press and hold for 1 second to start the cycle.

The door will lock automatically and the cycle will start.

You may be prompted to enter a PIN code. Refer to Section 3.2.

Note: If the autoclave too hot symbol is displayed, the autoclave will cool before starting the cycle.

2



Cycle progress



Cycle abort

Drying selection button

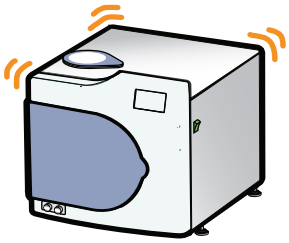
Indicates drying is selected

Cycle type
Cycle No.
Chamber temperature & pressure

Cycle progress Indication

Refer to Section 3.3 for description of the cycle progress screen

3



Selecting/ de-selecting drying



Press the drying selection button during the cycle to turn drying off or on.

Drying progress

Drying stage

Indicates drying selected

Indicates drying not selected

You can turn drying off or on at any time during the cycle.

Drying is on by default, with the exception of the 134° B HP cycle.

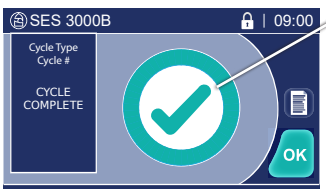
You may be prompted to enter a PIN code. Refer to Section 3.2: "The Keypad".

Note that the ability to turn off drying for B type cycles can be disabled, if required, by an Eschmann or Eschmann trained engineer. When this is done, the drying button is not displayed for B type cycles. (Not applicable to the 134° B HP cycle.)

4



Cycle complete



Green tick indicates cycle passed.

The autoclave can now be unloaded. Refer to Section 8.

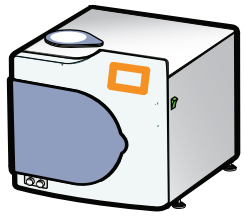
In the event that a cycle has been stopped or fails, a RED CROSS is displayed instead of the green tick.

In this case, the load has NOT been sterilised.

Refer to Sections 9 and 12.

8 Unloading the Autoclave

1



Cycle complete

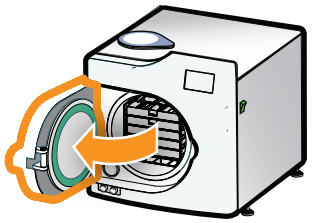


OK Press to unlock door when OK button displayed.

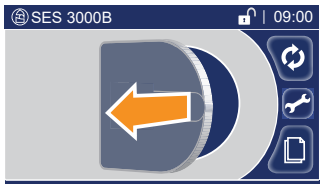
You will be prompted to enter a PIN code. Refer to Section 3.2: "The Keypad"

Press to view the completed cycle log.

2



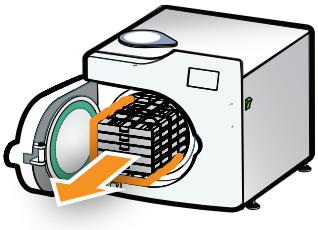
Open the door



Be aware that a small amount of hot water may exit the chamber when opening the door after a cycle.

If an action is required, for example, the Fill Water Reservoir screen is displayed, you can still open the door.

3



Remove the load

Use the Eschmann Tray Lifter - refer to Appendix 2.

Check wrapped and pouched loads for dryness. If the load and/ or packaging are wet, it is not suitable for storage and must be used immediately or re-sterilised.

The autoclave is now ready to run another cycle.

Leave the door ajar between cycles

Take care!
The load and chamber will be very hot.

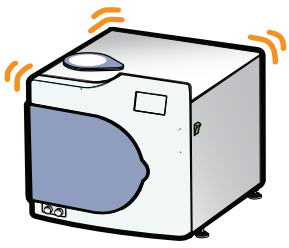
If the load feels heavy, use the Eschmann tray lifter with two hands.

USE UNWRAPPED INSTRUMENTS IMMEDIATELY.

9 How to Stop (Abort) the Cycle

⚠ WARNING!
The load is NOT sterilised.
When a sterilising cycle is aborted the load must be treated as non-sterile. The load must be sterilised by running the cycle again.
If the load was wrapped or pouched, new packaging must be used.

1

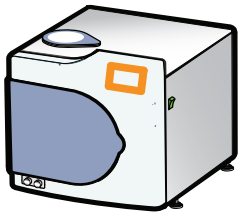


Stop the cycle

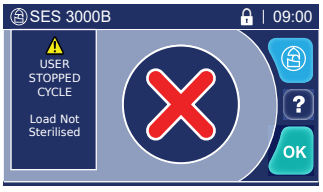


Press and hold for 2 seconds to stop the cycle

2



The cycle has stopped



There may be a delay whilst the chamber stabilises, allowing the door to be opened

Red cross indicates cycle failed.

OK

When OK appears after a short delay, you will be prompted to enter a PIN code. Refer to Section 3.2.

THE LOAD IS NOT STERILISED.

? You can press this to display details of the cycle. Refer to Section 12.

Take care!
The load, chamber and door will be VERY HOT.

10 Draining Reservoirs and Actions After Use

10.1 Draining the Reservoirs

⚠ WARNING!
Water in the waste reservoir can be very hot. Take care when draining to avoid contact with the hot water.

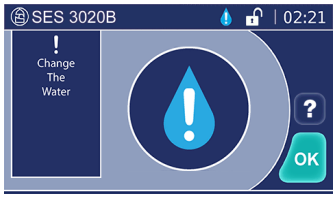
The autoclave is fitted with a fresh water reservoir and a waste water reservoir. Both need to be drained periodically. The reservoirs can be drained with the autoclave switched on.

When to Drain a Reservoir:

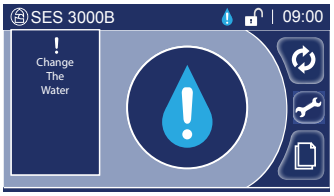
Fresh Water Reservoir:

The Fresh Water Reservoir should be:

- Drained at the end of each day.
- Drained and refilled if a 'CHANGE THE WATER' screen is displayed (See below), due to impurities that could damage the autoclave. For further information, refer to Section 4.



Water quality at alert level. Either drain the reservoir and refill (Recommended), or press OK to accept.

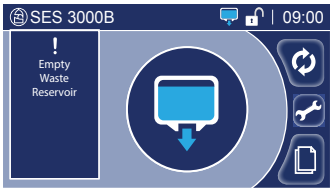


Water quality at action level. Drain the reservoir and refill.

Waste Water Reservoir:

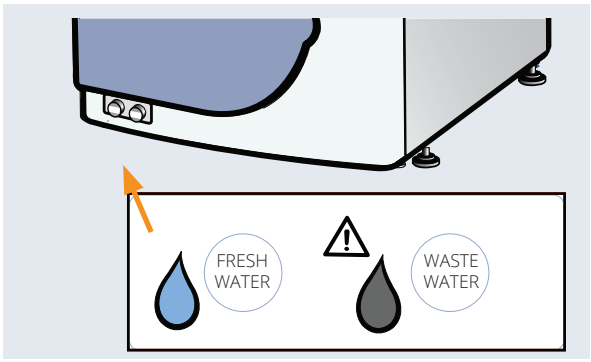
The Waste Water Reservoir should be:

- Drained at the end of each day.
- Drained when the 'EMPTY WASTE RESERVOIR' advisory screen is displayed.

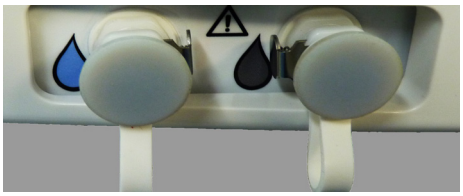


How to Drain a Reservoir:

Fresh water and waste water reservoir drain sockets are located as shown below:

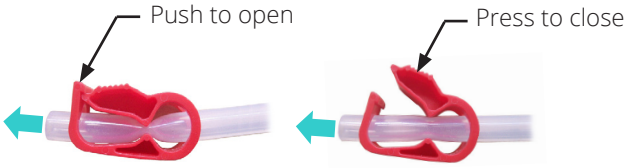


To drain a reservoir, first remove the drain plug (If fitted) from the fresh water or waste water reservoir drain socket by pressing the metal thumb release on the side.



Place the cut end of the supplied drain tube into a sink or container on a surface below the level of the autoclave (Capacity: 5 litres or more).

Ensure that the red drain tube clip is closed.



Connect the drain tube connector into the fresh water or waste water drain socket, as required. This action opens the valve and allows the water to drain, however, the red drain tube clip is now holding the water back.

Open the red drain tube clip to drain the water.

If using a container, remember to empty it.

Once drained, release the drain tube from the socket by pressing the metal thumb release on the side. Refit the drain plug.

Check that the red drain tube clip is not damaged or leaking. If so, **replace as soon as possible.**

On completion, leave the red drain tube clip in the closed position on the pipe.

If applicable, refer to Section 4 to re-fill the fresh water reservoir.

10.2 Switching Off

Switch off the autoclave at the mains switch (Fig. 1, item 4) when not in use.

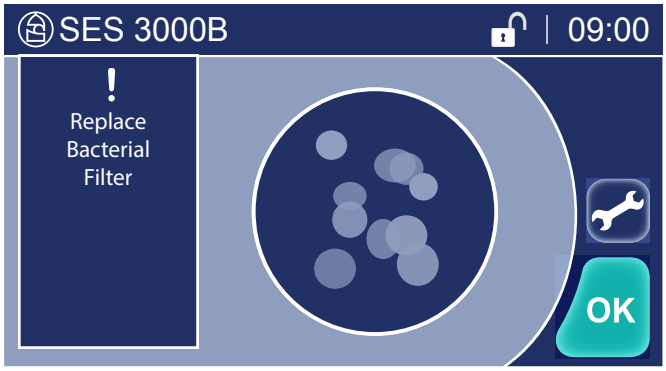
Leave the autoclave with the door ajar and the chamber empty.

10.3 Cleaning

At the end of each day carry out the Cleaning and maintenance instructions. Refer to Appendix 3.

11 Service Screens

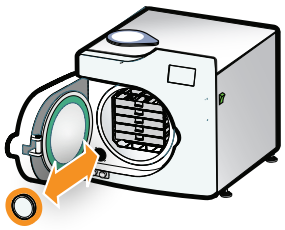
11.1 Replace the Bacterial Air Filter



The bacterial air filter needs replacing when this screen is displayed.

You can replace the filter with the autoclave switched on.

The screen will clear when the task is complete.



⚠ WARNING!
The water, chamber and load could be very hot and potentially non-sterile.

1. Open the autoclave door.
2. Gently pull the filter to remove it.
3. Replace with a new filter, pushing it firmly into place.
4. Discard the old filter in normal waste.
5. Update the Settings Menu counter for the filter.

Updating the Settings Menu

It is important to update the counters for the parts in the Maintenance Menu. The counters count the number of cycles performed for each part. This allows the autoclave to warn you when routine maintenance is required.

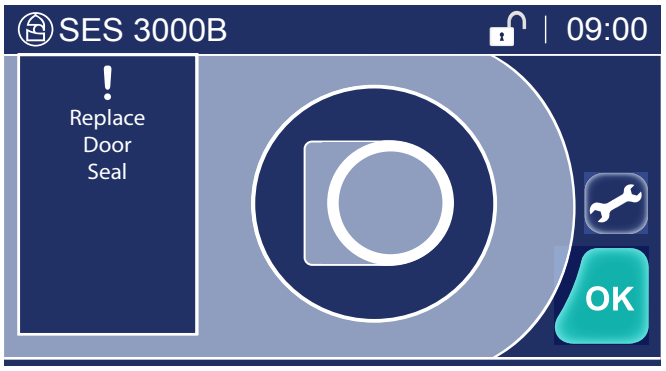
Press to display the Maintenance Menu from the Replace Bacterial Air Filter screen.

or

Press to display the Settings Menu from the Open Door, Close Door, or Cycle Start screens and select Maintenance.

Refer to Section 13.2 : “Settings Menu” - Maintenance.

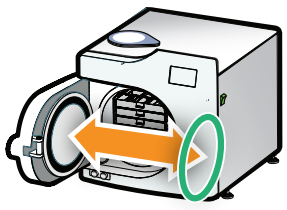
11.2 Replace the Door Seal



The door seal needs replacing when this screen is displayed.

You can replace the door seal with the autoclave switched on.

The screen will clear when the task is complete.



⚠ WARNING!
The water, chamber and load could be very hot and potentially non-sterile.

1. Open the autoclave door. Allow to cool if necessary.
2. Gently pull the door seal away from the door.
3. Clean the door surface and door seal groove using distilled, deionised or reverse osmosis (RO) water and a clean, soft, non-abrasive, lint-free cloth suitable for use on stainless steel.
4. Fit the new door seal into the recess. Press to secure it at the 12, 6, 3 and 9 o’clock positions, then press firmly into place all around. Support the back of the door as you press. It must sit flush to the door surface.
5. Discard the old door seal in normal waste.
6. Update the Settings Menu counter for the door seal.
7. Run a T1 Chamber Integrity Test cycle.

Updating the Settings Menu

It is important to update the counters for the parts in the Maintenance Menu. The counters count the number of cycles performed for each part. This allows the autoclave to warn you when routine maintenance is required.

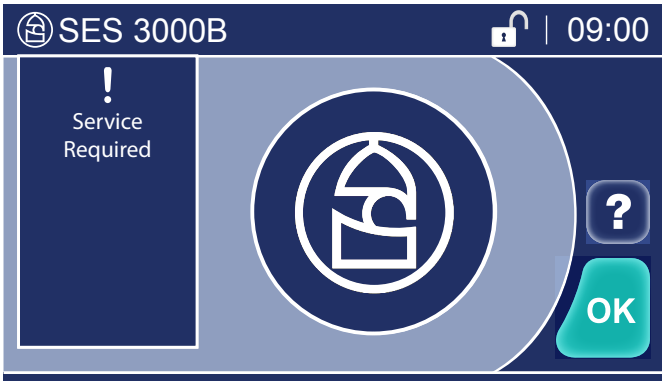
Press to display the Maintenance Menu from the Replace Door Seal screen.

or

Press to display the Settings Menu from the Open Door, Close Door, or Cycle Start screens and select Maintenance.

Refer to Section 13.2 : “Settings Menu” - Maintenance.

11.3 Service Required



The autoclave requires servicing by an Eschmann or Eschmann trained engineer. Contact Eschmann as soon as possible.

? Press to display the details required for contacting Eschmann.

OK Press to acknowledge the warning and clear the screen. The screen will reappear at the beginning of each cycle until the autoclave is serviced.

12 Advisory Screens

Advisory screens may be displayed at any time to protect the autoclave.

When the advisory screen is first displayed some touch screen buttons are not available whilst the autoclave is depressurising in preparation for the door being opened.

This may take up to two minutes, at which point one of the following advisory screens will be displayed.

CAUTION

The water, chamber and load could be very hot and potentially non-sterile.

After clearing any warning, always allow the chamber to dry before starting another cycle.

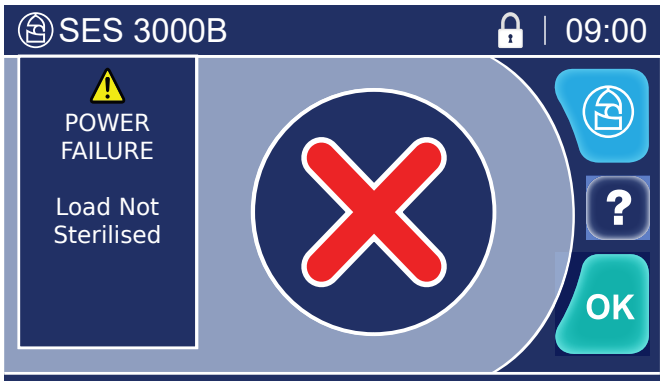
⚠ WARNING!

If an advisory screen is displayed, the load must be treated as NON-STERILE.

Sterilise the load by running the cycle again.
If the load was wrapped or pouched, new packaging must be used. Refer to Appendix 2.

Do not attempt to solve the problem using tools or by tampering with the autoclave.

POWER FAILURE



Displayed if the autoclave experiences a power interruption.

? Press to display the details required for contacting Eschmann.

OK
1. When OK appears after a short delay, press to acknowledge the warning and clear the screen.
2. Check mains supply, mains connections, autoclave fuses and mains cable fuse.
3. Run the cycle again. If the warning persists, contact Eschmann.

Eschmann use only (PIN protected).

USER STOPPED CYCLE



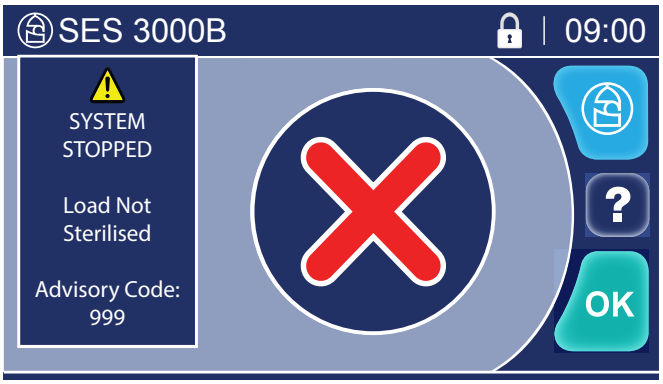
Displayed when the STOP button is pressed to stop a cycle.

? Press to display the details required for contacting Eschmann.

OK When OK appears after a short delay, press to acknowledge the warning and clear the screen.

Eschmann use only (PIN protected).

SYSTEM STOPPED



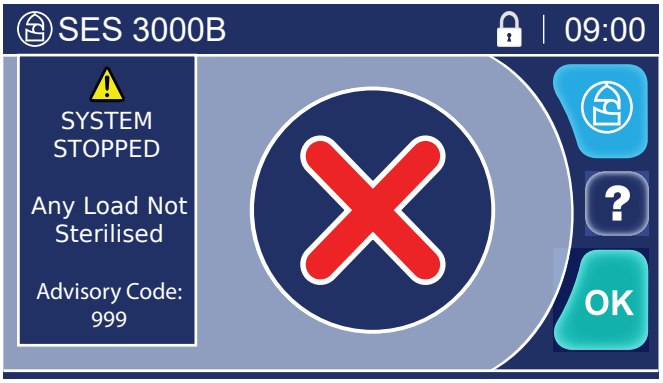
Displayed when the autoclave prevents operation **during a cycle**.

? Press to display the details required for contacting Eschmann.

OK
1. Note the Advisory Code. When OK appears after a short delay, press to acknowledge the warning and clear the screen.
2. Refer to Appendix 4 and complete the actions against the relevant Advisory Code.
3. Run the cycle again. If the warning persists, contact Eschmann.

Eschmann use only (PIN protected).

SYSTEM STOPPED



Displayed when the autoclave prevents operation when a **cycle is not in progress**.

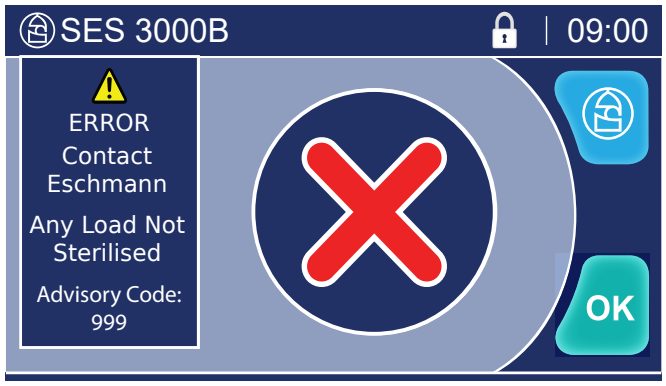
? Press to display the details required for contacting Eschmann.

OK
1. Note the Advisory Code. When OK appears after a short delay, press to acknowledge the warning and clear the screen.
2. Refer to Appendix 4 and complete the actions against the relevant Advisory Code.
3. Run the cycle again. If the warning persists, contact Eschmann.

Eschmann use only (PIN protected).

ERROR

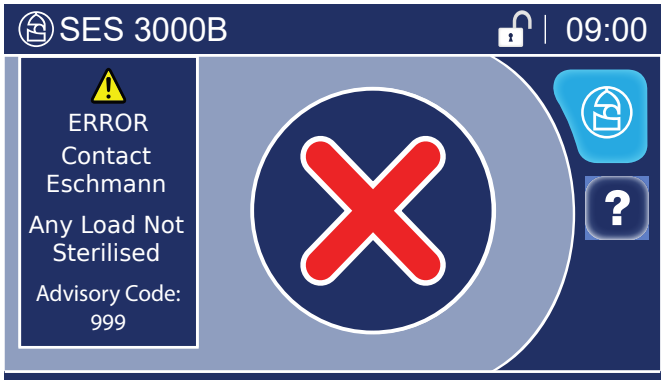
All errors require you to contact Eschmann.



Displayed when the autoclave experiences an Error.

OK
1. When OK appears after a short delay, press to acknowledge the warning and unlock the door.
2. The door locked symbol at the top of the screen will change to the door unlocked symbol when the door is ready to be opened to retrieve instruments.

The screen changes to:



The autoclave is prevented from being used as this Error screen cannot be cleared.

? Press to display the details required for contacting Eschmann.

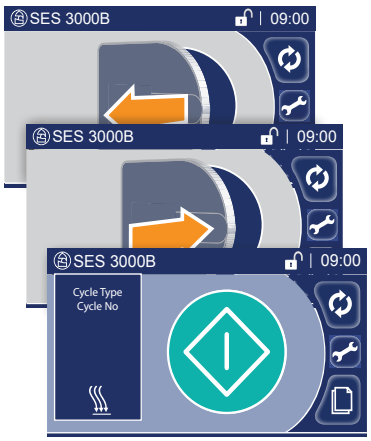
Switch the autoclave off and unplug from the electrical wall socket.

Eschmann use only (PIN protected).

13 Menus

13.1 Setting a Delayed Start

1



The cycle has not yet started
The Autoclave is loaded

From the Open Door, Close Door, or Cycle Start screens:

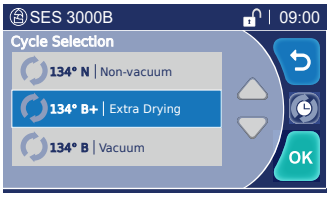
Press to view the Cycle Selection menu.

A Delayed Start allows you to delay the start of a cycle by up to 23 hours and 59 minutes from when the start button is pressed.

A delayed start is set at the time of selecting a new cycle.

Refer to Section 6, Selecting The Cycle.

2



Select the cycle to delay

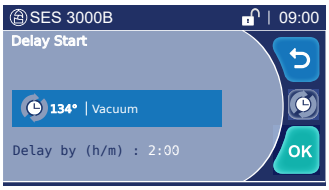
Use the up/down buttons to highlight your chosen cycle in the blue area of the screen.

OK — Do not press.

Press to view the Delay Start screen.

Press to return without change.

3



Set a delayed start time

OK — Press to accept the delay time shown and go to **5** below

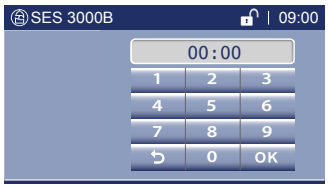
or

Press to enter a new delay time.

Press to return without change.

The delayed start time is not the time that the cycle will start, but the time delay to cycle start after pressing the start button.

4



Insert the Delay Time

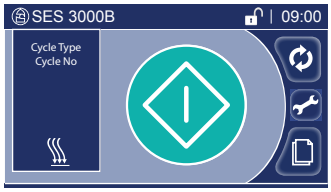
Enter the delay time in hours and minutes using the 24 hour clock.

Press **OK** to accept.

The maximum delay time is 23 hours and 59 minutes.

Press to return without change.

5

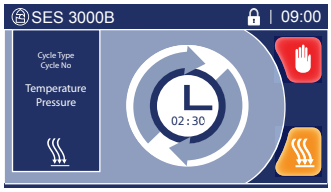


Start the Delayed Cycle

Press to start the delay cycle
The door will lock and the delayed cycle will start.

The delay time begins when the Start button is pressed.

6



Delayed Cycle Running

When the count down is complete (0:00), the Run Screen will be displayed for the duration of the cycle.

Press to stop the cycle.

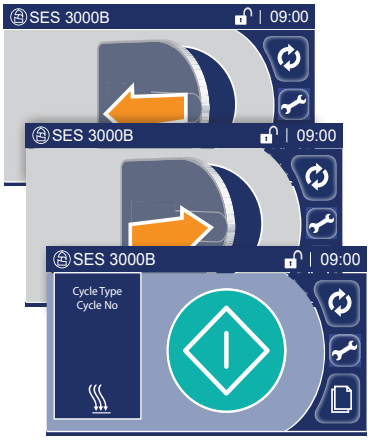
Press to toggle drying on / off.

A count down is shown on the screen.

13.2 Settings Menu (Manager PIN only)

Viewing the Settings Menu

1



The cycle has not yet started

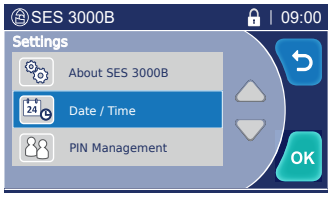
From the Open Door, Close Door, or Cycle Start screens:

Press to view the Settings menu.

The Settings menu contains:

- Date / Time
- Sounds
- PIN Management
- Security Level
- Service
- Maintenance
- About SES 3000B/ SES 3020B

2



Select the required setting

Use the up/down buttons to highlight your chosen setting in the blue area of the screen.

OK — Press to view the setting screen.

Press to return without change.

Date / Time

1



Set the date and time

Use the up/down buttons to highlight your chosen setting in the blue area of the screen.

Press to edit the highlighted setting: Date or Time.

Press to return without change.

You must set the correct date and time as this is logged in the cycle records.

2



Insert the date or time

Enter date or time in the relevant keypad.

Press OK when complete.

The date format is Day/Month/Year.

The time setting uses the 24 hour clock.

Press to return without change.

3

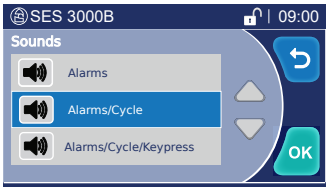


Set the autoclave's date and time

OK — Press **OK** to accept.

Press to return without change.

Sounds



Select sounds

Use the up/down buttons to highlight the chosen setting in blue.

OK Press **OK** to accept.

Alarms	Warning screens are announced by 5 short beeps
Cycle	Cycle start: short beep Cycle end: long beep
Keypress	Short beep with each key press

Press to return without change.

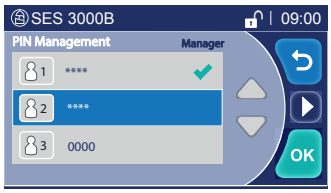
There are three sound types to choose from:

Alarms
Alarms/Cycle
Alarms/Cycle/Keypress

Note that alarms are always sounded.

The selection highlighted in blue is the current selection.

PIN Management

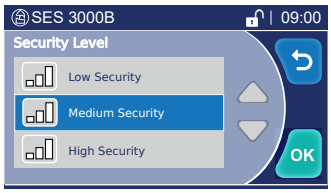


Setting a PIN Code

Refer to Section 14.3: “Setting a PIN code”.

Press to return without change.

Security Level

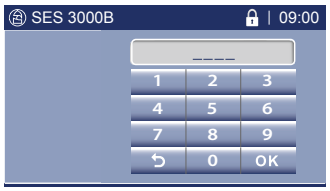


Selecting the Security Level

Refer to Section 14.4: “Selecting the security level”.

Press to return without change.

Service

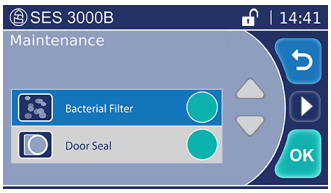


Service

The Service menu is protected by a Service PIN Code that is for Eschmann use only.

Press to return without change.

Maintenance



Resetting the Bacterial Air Filter and Door Seal Counters

The autoclave counts the number of cycles performed by the Bacterial Air Filter and Door Seal. From this, it determines when the item will need to be renewed.

The autoclave uses a simple traffic light system to indicate the usage of the parts:

Possible cycle quality impact - replacement overdue.

Immediate replacement required.

Cycle count not high enough to require replacement, although if the part is damaged, replace immediately.

Use the up/down buttons to highlight the chosen selection in blue.

Press to reset the highlighted selection.

OK Press **OK** to accept.

Press to return without change.

Replace the filter and/ or seal before resetting the counter(s).

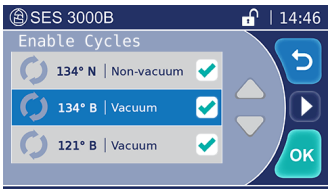
When you reset an item on this screen, it is marked with an arrow to indicate that you have selected to reset it.

Item(s) are reset when you press **OK.**

The **Replace the Bacterial Air Filter** and **Replace the Door Seal** service screens begin to display when an amber warning is in force.

Configure Cycles

1



Enable Cycles

Use this screen to enable the cycles available to the user on the Cycle Selection screen.

Use the up/down buttons to highlight the chosen selection in blue.

Press to toggle the check box. A green tick indicates the cycle type is enabled. A greyed out tick indicates the cycle is not enabled.

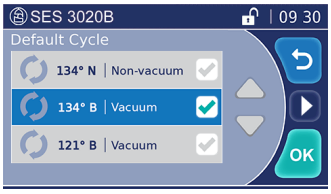
OK Press **OK** to accept. The default cycles screen (See below) will be displayed.

Press to return without change.

If all B type cycles are disabled, the T2 and T3 cycles can also be disabled.

If one or more B type cycles are enabled, the T2 and T3 cycles are automatically enabled.

2



Default Cycles

Use this screen to select the autoclave default cycle. Only one default cycle can be selected.

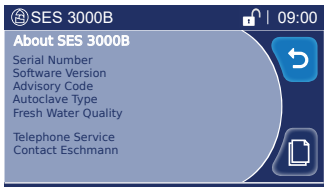
Use the up/down buttons to highlight the chosen selection in blue.

Press to toggle the check box. A green tick indicates the cycle is selected as the default cycle. A greyed out tick indicates the cycle is not selected as the default cycle.

OK Press **OK** to accept.

Press to return without change.

About SES 3000B (SES 3020B)



About SES 3000B/ SES 3020B

Contains useful information about your autoclave when contacting Eschmann.

Press to return to the starting screen.

Press to view the Records menu.

Fresh water quality information and the last advisory code may also be presented on this screen.

13.3 Cycle Records

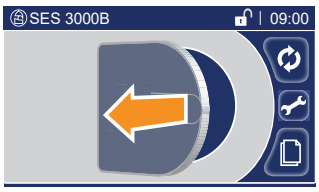
Cycle records can be downloaded onto a USB memory stick. Follow the 'Downloading Records' instructions in this section. (Note: The USB memory stick should be <16Gbs USB FAT32 format only).

The USB memory stick should only be inserted into the autoclave for the cycle record downloading process and should be removed, once finished.

Cycle records can also be viewed directly on the screen. Follow the 'View Cycle' instructions in this section.

Downloading Records

1

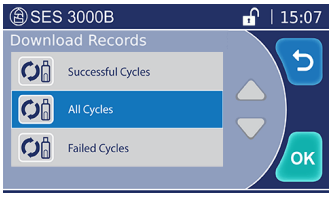


From the Open Door, Close Door, or Cycle Start screens:

Press to view the Records menu.

Insert a USB memory stick into the USB port. (Fig. 1, item 7)

2



Download records

Use the up/down buttons to highlight the chosen selection in blue.

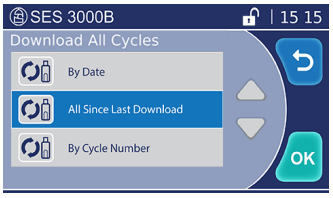
OK — Press to accept and view the next screen.

Select from:

Successful Cycles
All Cycles
Failed Cycles

Press to return without change.

3



Download records

Use the up/down buttons to highlight the chosen selection in blue.

OK — Press to accept and view the next screen.

All Since Last Download will start download of all cycle records since the last download.

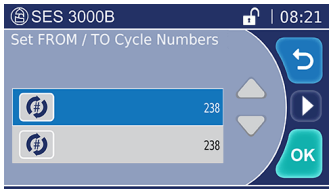
See below when selecting By Cycle Number and By Date.

Select from:

By Date
All since last Download
By Cycle Number.

Press to return without change.

- By Cycle Number



Set FROM / TO Cycle Numbers

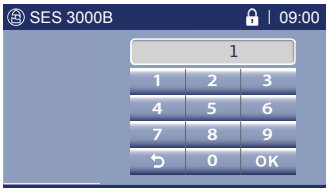
Use the up/down buttons to highlight the chosen selection in blue.

Press to enter the selected cycle number (See below).

OK — Press to accept the cycle numbers shown and begin download.

Press to return without change.

Input boxes default to the most recent cycle number, but can be changed.



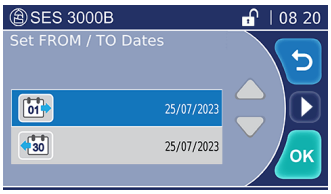
Enter the cycle number

Enter the cycle number in the keypad. Zero and numbers prefixed by zeros are not accepted.

Press **OK** to accept the cycle number entered.

Press to return without change.

- By Date



Set FROM / TO Dates

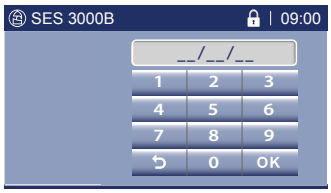
Use the up/down buttons to highlight the chosen selection in blue.

Press to enter the selected date. (See below)

OK Press to accept the dates shown and begin download.

Press to return without change.

Input boxes default to today's date, but can be changed.



Enter the date

Enter the date in the keypad.

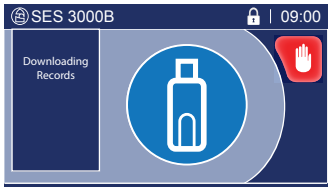
Press **OK** to accept the date entered.

The date format is Day/Month/Year.

Press to return without change.

Download

4



Downloading Records

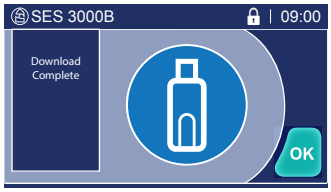
The records are being downloaded via the USB port.

Press to stop the download before download is complete.

If **Plug In USB** is displayed, check that a USB memory stick is correctly connected.

Do NOT remove the USB memory stick during download.

5



Downloading Complete

Download is complete. Exit the Records menu before removing the USB memory stick.

OK Press **OK** to exit.

Always ensure that the USB stick is removed once downloading is completed.

If **Download Failed** is displayed, check for the following:

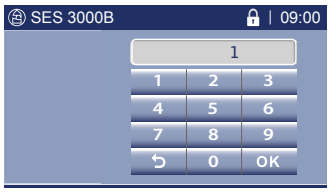
Memory stick not formatted

Memory stick is full

Memory stick not plugged in

Search returned no data

View Cycle



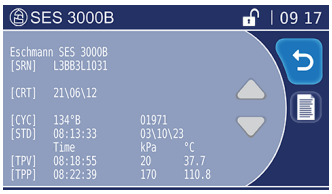
To view a cycle record directly on the screen:

From the Download Records menu (See instructions 1 and 2 in this section), select 'View Cycle'.

Enter the cycle number in the keypad. Zero and numbers prefixed by zeros are not accepted.

Press **OK** to accept the cycle number entered.

Press to return without change.



The cycle record can now be viewed on the screen.

Press to view the detailed cycle record

Press If a printer is enabled, to obtain a printout of the cycle record.

Press to return without change.

14 User Security

14.1 Overview

The autoclave can be configured to provide varying levels of security.

This takes the form of a four digit PIN code (Personal Identification Number) which must be entered into the Keypad at different points in the touch screen menu.



Levels of Security

The autoclave provides for three types of user:

Type	Description
User	Basic day-to-day user
Manager	The Autoclave Manager (more than one if required)
Service	Eschmann use only

- A User PIN will only work at a User location.
- A Manager PIN will work at both a User or Manager location.

There are fixed points in the touch screen menu that require you to enter a PIN code that cannot be disabled:

Fixed PIN Locations	Type
End of cycle	User/Manager
All Warnings	User/Manager
Service Required screen	User/Manager
Settings Menu	Manager
Records Menu	Manager

Default Setting

The autoclave has twelve PINs. PIN 0001 is configured as a Manager allowing full access to the autoclave (except Eschmann Service screens). For security, this number should be changed by the Manager when first receiving the unit.

Note: REMEMBER YOUR "MANAGER" PIN CODE! A forgotten Manager PIN code will require a Service call-out to access the menus.

All other PINs are disabled by being set to 0000.

Security PINs are configured in the Settings\PIN Management menu. The Settings menu is protected by the Manager PIN.

14.2 Autoclave Manager

Appoint a staff member to be the Autoclave Manager.

The Autoclave Manager, who must be trained in the use of the autoclave, will control the use of the Autoclave.

The Autoclave Manager is responsible for ensuring that the correct sterilisation cycle is used for the items being sterilised, ensuring that records are kept correctly, and for keeping the PIN code(s) confidential.

We recommend that you set up the security so that you have:

- One Autoclave Manager (perhaps more in large departments).
- One or more Users.

Reasons for Security

Standard BS EN 13060 specifies the general requirements and test methods for small steam sterilisers and sterilisation cycles used for medical purposes, or for materials that are likely to come into contact with blood or body fluids.

It identifies three classes of cycle: Types B, N and S.

The choice of sterilisation cycle must be appropriate for a particular load type.

> Only B Type cycles provide safe sterilisation for all types of load: Solid, hollow, porous, unwrapped, bagged and wrapped.

Guidelines state that:

- Permanent records of every sterilisation cycle should be kept.
- Written records of all testing and maintenance should be kept
- Sterilisation performance must be checked frequently to include a daily steam penetration test.

The security offered by the SES 3000B and SES 3020B autoclave captures all of these elements. The PIN codes that you create form a major part of the record keeping for this autoclave. They appear in the cycle records (Section 13.3 : "Records Menu"), and in records printed using the Cycle Logger application (Section 15).

The PIN codes will allow you to know:

Who started a cycle	High security level
Who accepted a stopped cycle	All security levels
Who unlocked the door at the end of a cycle	All security levels
Who cleared Service screens	Medium and High security levels

14.3 Setting a PIN Code

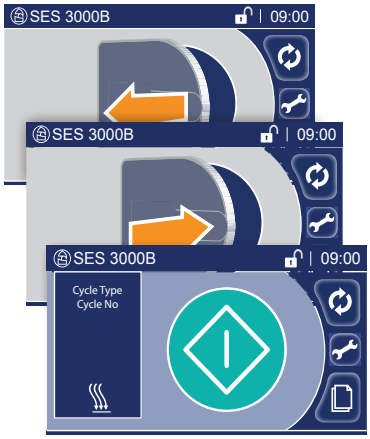
To set a PIN	Enter a four digit number (except 0000)
To disable a PIN	Enter 0000

The PIN won't set?

If you type in a PIN but the screen reverts to 0000, then that PIN is already in use. Enter a different four digit number.

Note: Eschmann reserve a number of PINS.

1

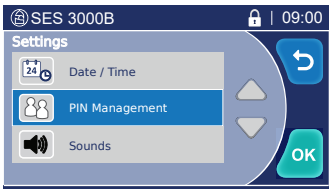


The cycle has not yet started

From the Open Door, Close Door, Cycle Start screen (Or any other screen where the spanner symbol is displayed):

Press to view the Settings menu.

2



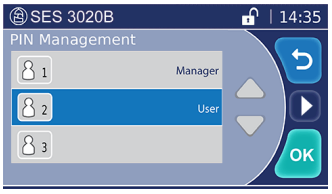
Select PIN Management

Use the up/down buttons to highlight PIN Management in the blue area of the screen.

OK — Press to accept.

Press to return without change.

3



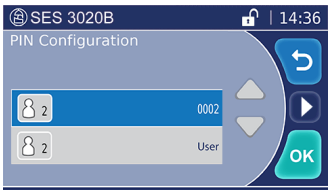
Select the PIN to edit

Use the up/down buttons to highlight your chosen PIN in the blue area of the screen.

Press to edit PIN or status level.

Press to return without change.

4

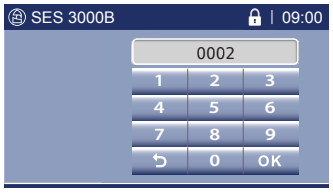


Select to Edit PIN or Status Level

Use the up/down buttons to highlight the PIN or status level in the blue area of the screen.

Press to edit: toggles between User/ Manager, or displays a PIN code keypad.

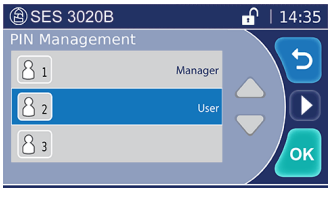
Press to return without change.



Enter a new PIN code to replace the PIN displayed and press **OK** to accept.

Press to return without change.

5



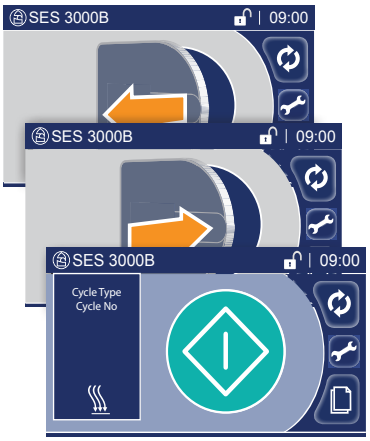
PIN Management

OK — Press to accept and save all changes.

Press to return without change.

14.4 Selecting the Security Level

1

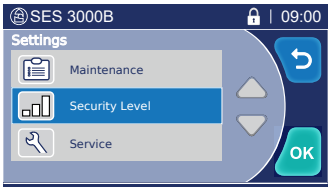


The cycle has not yet started

From the Open Door, Close Door, or Cycle Start screens (Or any other screen where the spanner symbol is displayed):

Press to view the Settings menu.

2



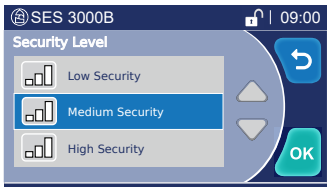
Select Security Level

Use the up/down buttons to highlight Security Level in the blue area of the screen.

OK Press to accept.

Press to return without change.

3



Select Required Security Level

Use the up/down buttons to highlight the required Security Level in the blue area of the screen.

OK Press to accept and return to your starting screen in **1** above.

Press to return without change.

MEDIUM security is recommended.

USER PIN locations enabled by selecting LOW, MEDIUM and HIGH Security Levels

Security level	Service screens	Cycle select	Cycle start	Drying	Cycle end
LOW					✓
MEDIUM Recommended	✓				✓
HIGH	✓	✓	✓	✓	✓

15 Cycle Logger Application

The digital storage of cycle data replaces the need for a traditional paper printer.

To view and print the files, transfer the files on to a PC using the USB memory stick.

(Note: The USB memory stick should be <16Gbs USB FAT32 format only).

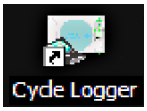
15.1 Install the Software

Suitable for use with Windows® XP, 2000, Vista, and 7. Requires one USB port.

1. Disconnect the PC from the internet and any local area network (to prevent Windows® from installing the incorrect drivers).
2. Ensure there is no USB connection between the PC and the autoclave.
3. Insert the supplied USB memory stick that contains the Cycle Logger Application Software in to your PC. Follow the Installation Wizard's instructions.

   If an older version is found, it will be uninstalled first. After this, remove and replace the USB memory stick to restart the installation.
4. When the Wizard has finished, remove the USB memory stick and shut down your PC.
5. Restart your PC.

The installation process is complete.

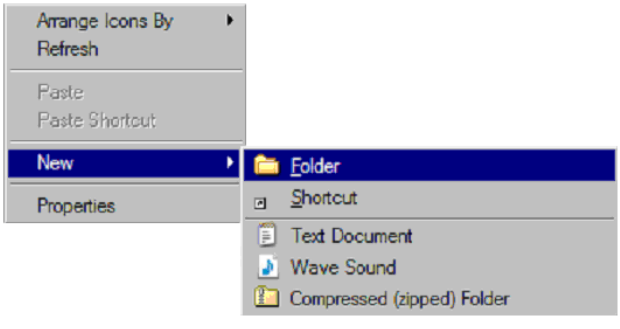


There is now a shortcut on your desktop to open the software.

15.2 Create a PC Back-up

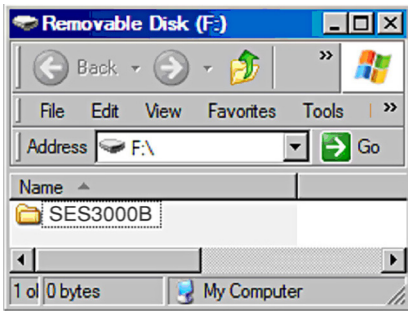
On a regular basis, say weekly, it is sensible to back-up your data from the USB memory stick to your PC, putting it into a back-up folder on your PC desktop.

To create the back-up folder, right-click on the desktop and select **New**, then **Folder**.

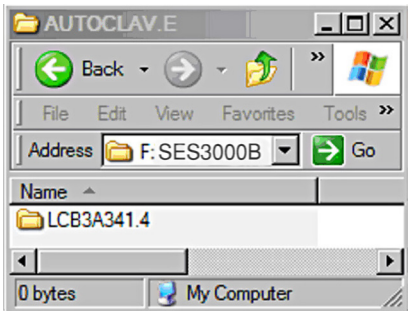


Type in the name of the new folder. We suggest **SES 3000B (or SES 3020B)**. If you are backing-up more than one unit, you may want to add the autoclave Serial Number to the title as well.

To back-up the files:



1. Insert the USB memory stick directly into the USB port on your PC.
2. A window will appear saying AUTOCLAVE.



3. Double-click the AUTOCLAVE folder to display a folder similar to the one shown below. It will be named with the unit's Serial Number.
4. To back-up the files, simply drag the folder onto your back-up folder on the desktop.

You are copying files in the same way you might copy photos from your camera. Partially minimise the windows on the PC to make drag-and-drop easier to use.

15.3 Viewing Files

To view files in your back-up folder, use Windows® Explorer to view the folder contents.

Open single or multiple files by double-clicking any **.ELG** file.

Each file opens in its own window (opposite). Cycle files are ".ELG" files. They are named using the cycle number (e.g. 00186.ELG), or a code that is generated from the date and time (e.g. 1435874.ELG).

If Windows does not recognise the file type, you can right-click the file and select Open With. Select the Cycle Logger program from the list. It will then recognise all **.ELG** *files in the future.*

Viewing options



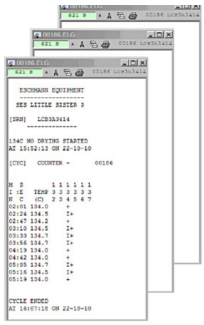
A click to reduce the text size

A click to enlarge the text size

toggle to display all the data in the cycle, or only major events

Application Software

When an .ELG file is viewed, the Application Software is launched. It reads .ELG files and provides the following shortcuts, but you don't need to use it other than that.



Use these shortcuts when you have more than one window open:

List the open windows by right clicking in the Application Window. The open windows are listed in the Logs In Memory screen.

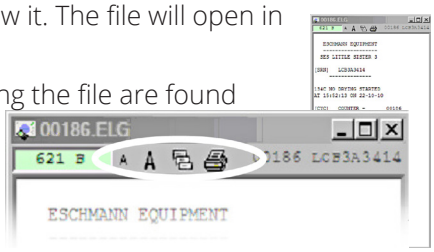


Bring a window to the front in the Logs In Memory screen by double-clicking its filename. Double-click it again to move the window to the top left of the PC screen.

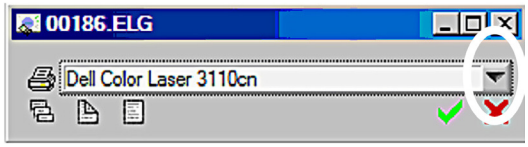
15.4 Printing Files

Select a file and view it. The file will open in its own window.

The tools for printing the file are found at the top of this window, as shown.



1. Click to display the print options screen below.



2. Click the arrow to select your printer.
3. Click to print the file.

Printing options



Toggle to display all the data in the cycle, or only major events

Toggle to select double-sided or single-sided printing

Toggle to select portrait or landscape format

Print the file

Cancel printing

Fault Finding

Application Not Loading

You must have Administrator rights to load programs. This is accessed on your PC via Start/ Control Panel/User Accounts.

Compatibility Mode

To change the compatibility mode of the software, select Start/All Programs/Eschmann Equipment/ Cycle Logger, and right-click on the second Cycle Logger.

Click on Properties. In the window click on the Compatibility tab. Check the Compatibility Mode check-box.

Select Windows XP from the drop-down menu. Click Apply and OK.

If problems still persist and you contact Eschmann we will need to know about your computer system.

We will need to know about the:

Windows version
Service Pack
Processor type

This is identified by clicking the Start button on your PC. Right-click on My Computer (or Computer). Select Properties. Select the General tab to view the information.

Cycle Output

The cycle output (opposite) can provide the following information:

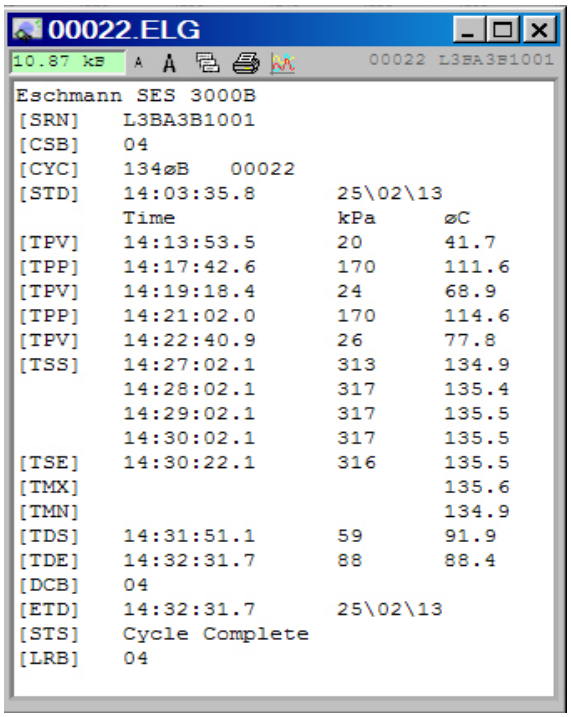
[SRN]	autoclave serial number
[CYC]	cycle type (e.g 134°B) and cycle count (e.g. 00022)
[STD]	start time and date (hh:mm:ss, dd\mm\yy)
Sterilisation information (time, pressure and temperature every 60 seconds during sterilisation)	
[TPV]	time of vacuum point
[TPP]	time of pressure point
[TSS]	time of sterilisation start
[p]	print sterilisation line ("all data" viewing only)
[TSE]	time of sterilisation end
[TMX]	maximum sterilisation temp
[TMN]	minimum sterilisation temp
[TDS]	time drying start
[TDE]	time drying end
[PTD]	time cycle finished processing ("all data" viewing only) (hh:mm:ss, dd\mm\yy)
[ETD]	end time and date (hh:mm:ss, dd\mm\yy)
[ERR]	error
[STS]	status at cycle end
[PCV]	pressure change value
Service and certification tags	
[SVC]	service expired (date/cycle count of service expiry)
[CRT]	certification expired (date of certification)
The amount of air recorded	
[AIC]	air in condensate ("all data" viewing only)
Security log additions (displays the number of the PIN: 1-12, 0 = not entered)	
[DCB]	drying cancelled by
[CSB]	cycle started by
[CAB]	cycle aborted by
[LRB]	load retrieved by
[LRT] (pin not displayed)	time user retrieved load ("all data" viewing only) (hh:mm:ss, dd\mm\yy)

Interpreting the Output

To indicate a successful cycle, [STS] displays "Cycle Complete" for 134°C B/N cycles, "Test Passed" or "Test Complete" for test cycles, or "Calibration Complete" for calibration cycles.

If any cycle parameters are incorrect, [STS] displays ***FAIL***, followed by an Advisory Code. Refer to Appendix 4.

Refer to Appendix 5 for the acceptable pressure and temperature ranges during sterilistation.





15.5 Connecting a Printer

Eschmann can supply an optional printer.

The Printer plugs into a standard domestic mains socket. It connects to the autoclave via an RS232 cable connected to the RS232 port (Fig. 1 item 6).

It is permanently attached to the autoclave, and will print a cycle record as each cycle progresses.

Note: ***In order for the printer to operate it must first be activated by an Eschmann or Eschmann trained engineer.***

With careful storage and avoiding sunlight, printed records can be stored for many years.

To order:

REF 8727390	Thermal Printer kit
REF 8727078	Printer Rolls (5)

Appendix 1 : Daily/ Weekly Test Cycles

⚠ WARNING!
Tests T1, T2 and T3 must not be used to process loads.

Daily and weekly Test Cycles must be conducted as detailed in this Appendix.

We recommend the daily use of the Steam Penetration Test Device in Test Cycle T3, and the completion of a Daily/Weekly Test Record available from Eschmann.

- 119858 - Log Book (for B Type Autoclaves)

Test cycles are selected and started in the same way as standard cycles. Refer to Sections 6 and 7.

All Test Cycles must be completed successfully.

1. Daily Testing - T3

Run Test Cycle T3 at the beginning of each day.

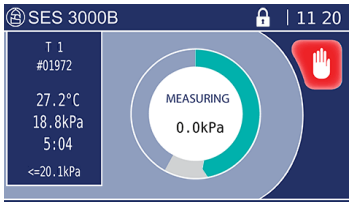
T3 : Steam Penetration
Refer to **Weekly Testing**.

2. Weekly Testing - T1, T2, T3

Run Test Cycles T1, T2, T3, in this order, at the beginning of each week.

T1 : Chamber Integrity Test

1. Empty the chamber. **The chamber should be dry and at ambient temperature.***
2. Select and run a T1 cycle. (Refer to Sections 6 & 7).



During the cycle, chamber pressure is reduced, followed by settling and measuring stages.

The pressure change is displayed during settling and measuring. To pass, the pressure change must be less than 1.3kPa during the measuring stage.

*Note: If the chamber is too hot, the autoclave will display 'Autoclave too hot'. If OK is pressed, the cycle can be started and the autoclave will attempt to cool the chamber for up to 30 mins prior to running the test. During cooling if OK is pressed, or at the end of cooling, the autoclave will attempt to run the T1 cycle. An elevated starting temperature increases the chance of a false T1 test failure

T2 : Air Detector Test

1. Empty the chamber.
2. Select and run a T2 cycle. (Refer to Sections 6 & 7).

T3 : Steam Penetration

1. Load the autoclave with only the Helix Test Device, as per the manufacturer's instructions.
2. Select and run a T3 cycle. (Refer to Sections 6 & 7).
3. Remove the Helix Test Device within 10 minutes of completing the cycle.
4. Compare the indicator test strip with the Helix Test Device instructions.

⚠ WARNING!
If errors are detected when running test cycles T1, T2, T3, or if the test strip from the Helix Test Device indicates a failure, the cause of failure MUST be corrected and the test repeated successfully before the autoclave is used to process loads

Steam Penetration Test Device (T3)

The B Type Helix Test Device supplied with the autoclave complies with BS EN 13060 for B type autoclaves hollow load A. It tests the steam penetration ability of the autoclave by presenting a defined challenge to the autoclave.

The Helix Test Device consists of a plastic tubular device with a holder at one end for an indicator strip.

The Helix Test Device must be replaced after 250 uses.

Only use the B Type Helix Test Device supplied by Eschmann.

CAUTION

The Steam Penetration Test Device must only be used and stored as detailed in the Instructions for Use supplied with the Device. Failure to do so could lead to failure of the Device and dangerously misleading results.

This Device satisfies the requirement to perform a daily steam penetration test as given in:

EN 17665-1 Sterilisation of health care products. Moist heat. Requirements for the development, validation and routine control of a sterilisation process for medical devices.

DB 2002(06) Device Bulletin, Benchtop Steam Sterilisers-Guidance on purchase, Operation and Maintenance, Medical Devices Agency, clause 5.3.1

SN 2002(24) Safety Notice, Steam penetration tests in vacuum benchtop sterilisers, Medical Devices Agency.

DB 9804 Device Bulletin, The validation and periodic testing of benchtop vacuum steam sterilisers, Medical Devices Agency, clause 5.1

HTM01-01(HTM2010)/HTM01-05/DB 2002(06)/ DB 9804 Testing

If required, further Daily, Weekly, Quarterly and Annual Testing may be necessary to satisfy the guidance in HTM01-01(HTM2010), HTM01-05, DB 2002 (06) and DB 9804.

Contact Eschmann for details on the automatic control test for HTM2010.

To order:

REF 8793436 Essential Helix test (x 250)

Appendix 2 : Loading the Autoclave

⚠ WARNING!
When loading the autoclave take care not to damage the door or chamber face. Damage to these parts can adversely affect performance.

When loading pouches ensure they do not make 'paper cuts' in the door seal.

Do not reprocess single-use items

Do not process liquids in the autoclave

Do not overload the autoclave

- **Thorough cleaning of all items prior to sterilisation is imperative to ensure instruments can be effectively sterilised.** If visible debris or bioburden is not removed prior to sterilisation it will compromise the sterilisation process.
- Eschmann recommend the use of a validated, automated cleaning process, i.e. thermal washer disinfector. Always follow the instrument manufacturer's instructions.
- Ensure all instruments are rinsed thoroughly prior to sterilisation to remove any traces of chemical detergents/disinfectants as these may cause corrosion during the sterilisation process. Ensure instruments are dried prior to being placed in the autoclave.
- Clean and lubricate dental handpieces prior to sterilisation. Eschmann recommends the use of a validated cleaning and lubricating system to ensure debris, bioburden and excess lubricant is removed from the insides of the handpiece prior to sterilisation, in accordance with the handpiece manufacturers instructions
- When placed in an autoclave, open and unlock all items fitted with hinges or ratchets.
- Dismantle, or only loosely assemble, any multiple-part items to allow steam penetration.
- Check the suitability of non-metallic items for processing in an autoclave. Check that the temperatures are acceptable
- **Do not overload the autoclave.** See the Load Capacity section in Appendix 2. Load types, load arrangements and load weight should conform to that specified and detailed in this section (Appendix 2).
- **Only use trays, HFiT cassettes, the pouch rack or porous load basket supplied by Eschmann.**
- **The Eschmann tray lifter must be used to load and unload Eschmann trays, HFITs, pouch rack and porous load basket.**
- If the load feels heavy, use the tray lifter with two hands.
- Once loaded, start the autoclave cycle. Do not leave items awaiting processing in the autoclave.
- **Refer to section 6: (Cycle chart) for the correct choice of cycle.**

Unwrapped Items

- **Applicable to solid, hollow and narrow lumen items.**
- Place items loose onto Eschmann perforated trays or hands-free instrument transfer (HFiT) cassettes.
- Avoid bunching items together and ensure all items are positioned so that they do not touch and can drain freely.
- Position all items so that they drain freely and do not trap rising air bubbles.
- See the Typical Loads Section in Appendix 2 for loading configurations.
- **Unwrapped items are for immediate use only.**
- **Refer to section 6: (Cycle chart) for the correct choice of cycle.**

Pouched/ Wrapped Items

- **Applicable to solid, hollow and narrow lumen items.**
- Sterilise pouched/ wrapped items (Single wrapped) using the Eschmann pouch rack, which holds pouches vertically.
- Use only one instrument per pouch. Touching instruments restrict steam penetration.
- To ensure loads completely dry, avoid packing pouches too tightly. Load paper/film pouches so that the film sides of adjacent pouches are face-to-face. Only use pouches recommended for steam sterilisation (i.e. conform to EN 868). Ensure all seals have been made correctly to maintain sterility once removed from the autoclave.
- See the Typical Loads Section in Appendix 2 for loading configurations.
- **Refer to section 6: (Cycle chart) for the correct choice of cycle.**

Porous Items

- **Applicable to porous items.**
- Sterilise porous items using the Eschmann porous load basket when using the SES 3000B.
- Sterilise porous items using the Eschmann Long Tray (379mm x 186mm) when using the SES 3020B.
- See the Typical Loads Section in Appendix 2 for the loading configuration.
- **Refer to section 6: (Cycle chart) for the correct choice of cycle.**

Implant Kits

- **Applicable to dental implant kits.**
- Only process one implant kit per cycle, without any other load.
- Implant kits can be unwrapped or single wrapped.
- See the Typical Loads Section in Appendix 2 for the loading configuration.
- Due to the physical differences between different makes of implant kit boxes, Eschmann recommend the use of metal implant cassettes.
- **Refer to section 6: (Cycle chart) for the correct choice of cycle.**

Using the Eschmann Tray Lifter

CAUTION

Take care when loading and unloading.

The load, chamber and door may be very hot.

The Eschmann tray lifter must be used to load and unload Eschmann trays, HFITs, pouch rack and basket.

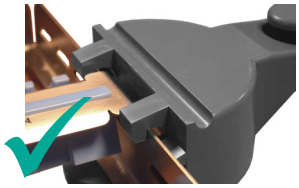
If the load feels heavy, use the tray lifter with two hands.

DO NOT use non Eschmann trays, racks or baskets.

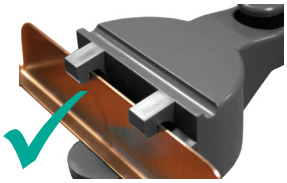
Position the half-round base UNDER the item to be lifted. Hook onto the item using one of the pairs of top clips:

- Use the upper pair of top clips for HFiT - hold at the side or end of the cassette.
- Use the lower pair of top clips for trays.

HFiT Cassettes

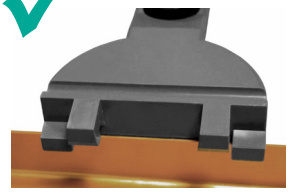


HFiT cassette gripped on its side.

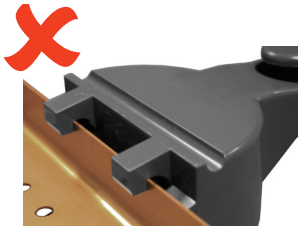


HFiT cassette gripped on its end.

Trays



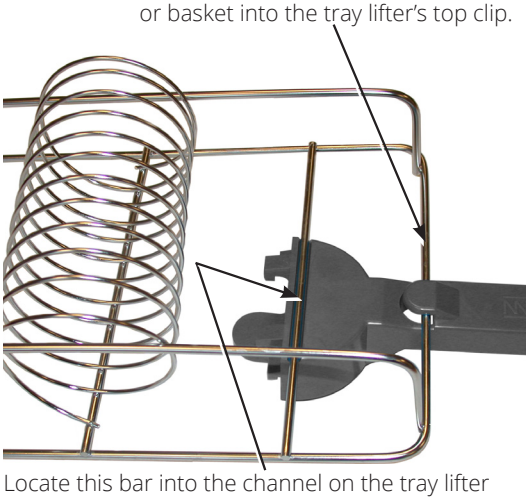
Tray in bottom clips
CORRECT



Tray in top clips
INCORRECT

Pouch Rack/ Porous Load Basket

Locate the end bar of the pouch rack or basket into the tray lifter's top clip.



Locate this bar into the channel on the tray lifter

To order: REF 8727121 Tray Lifter

The Tray Carrier

Eschmann trays, HFiT cassettes, pouch rack and porous load basket are loaded onto a frame located in the autoclave chamber called the tray carrier.

The tray carrier (load configuration) can be rotated through 90 degrees when inserted into the chamber to provide either three or five levels for holding trays/ cassettes.

The five level orientation can hold:

- 5 x HFiT 20 cassettes or
- 5 x standard trays or
- 10 x HFiT 10 cassettes or
- 10 x half trays or
- A combination of the above.
- The SES 3020B (only) can hold 5 x Long Trays (379mm x 186mm).

The three level orientation provides for deeper trays or 1 x implant kit.

If all trays and cassettes are removed, the tray carrier can hold:

- 1 x porous load basket (external dimensions: (280 x 147 x 87mm) or
- 1 x 11-rung pouch rack.

Note: ***Pull the tray carrier to unclip it from the chamber. The tray carrier requires a gentle push to clip it back into the autoclave chamber.***

The configuration of the load support system follows. **The load MUST be confined to the usable space.**

Load Capacity

DO NOT OVERLOAD THE AUTOCLAVE

SES 3000B:

Maximum total load:	5.0kg
Maximum weight/ item:	1.5kg
Maximum load/ tray:	1.5kg
Maximum porous load*:	1.0kg

1 x Implant kit.

* Using the Eschmann porous load basket

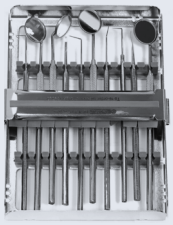
SES 3020B:

Maximum total load:	6.0kg
Maximum weight/ item:	1.5kg
Maximum load/ tray:	1.5kg
Maximum porous load*:	1.5kg

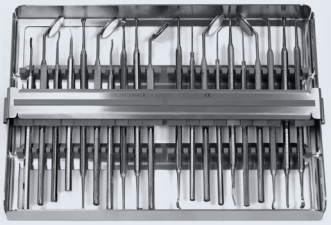
1 x Implant kit.

* Using the Eschmann Long Tray (379mm x 186mm)

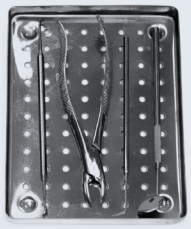
Typical Loads



10 x
HfiT10
cassettes



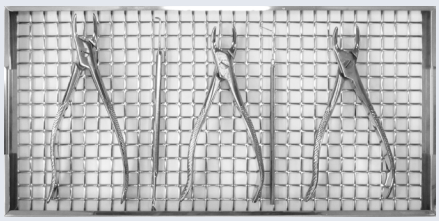
5 x
HfiT20
cassettes



10 x
Half tray



5 x
Standard tray



5 x
Long tray



Porous full load using porous
load basket 8727220

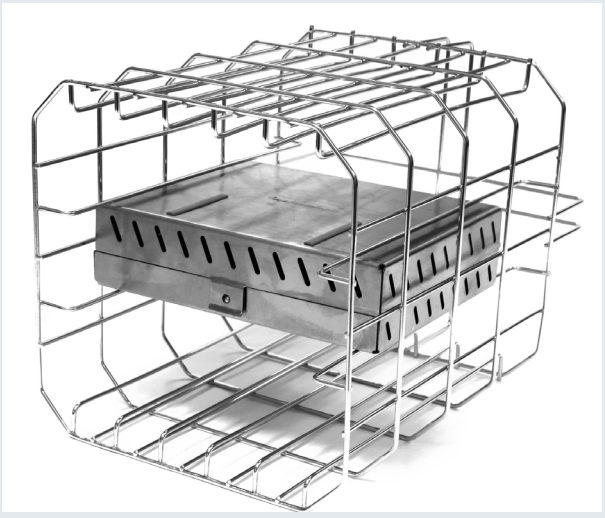


Single-wrapped full load in 11-rung
pouch rack (8704066)
mounted in the tray carrier



Single-wrapped items in 11-rung pouch rack
and one level of solid load

Note that pouched loads must be placed above solid loads



Implant kit cassette
Note that implant kits must be processed one at a time, and without any other load

Appendix 3 : Cleaning, Maintenance & Service

Cleaning

⚠ WARNING!

Disconnect from the mains electrical supply before cleaning the Autoclave.

Do not use tap water or cleaning products containing chlorides, chlorine, acids or other corrosive substances to clean the chamber, chamber face or door seal. These may cause corrosion, deterioration or other damage to the stainless-steel chamber, door seal and internal components.

Some cleaning and disinfectant wipes may contain chlorides or other substances that are unsuitable for use on stainless steel.

Always use distilled, deionised or reverse osmosis (RO) water for routine cleaning as specified in this section.

Do not use flammable liquids, abrasive powders, or solutions containing chlorine to clean the autoclave.

Even in the concentrations found in tap water, chlorine can cause damage to the autoclave.

Cleaning - Door seal, chamber and chamber face:

The door seal and chamber face should be cleaned regularly, ideally once each day before the first sterilisation cycle.

Clean using distilled, deionised or reverse osmosis (RO) water and a clean, soft, non-abrasive, lint-free cloth suitable for use on stainless steel.

Wipe the door seal to remove any dirt or debris. Thoroughly clean the chamber face, paying particular attention to any visible deposits or residue. More persistent deposits may require repeated gentle cleaning using the method described above.

Regular cleaning helps prevent the accumulation of deposits that may affect the door seal and could result in water or vacuum leaks.

Cleaning - Trays:

- Keep chamber trays clean.

Cleaning - Tray Lifter:

- Clean and sterilise the tray lifter regularly (e.g. once a week).

Cleaning - Exterior:

- Clean the exterior of the autoclave regularly.

Maintenance

⚠ WARNING!

Should the autoclave ever leak, disconnect from the mains electricity supply, drain the reservoirs and contact Eschmann.

In common with other systems containing static water reservoirs, the water in this autoclave can become contaminated over a period of time and should be treated as a potential risk of infection.

- Check the door seal and chamber face for damage daily
- Drain the fresh water and waste water reservoirs daily.
- Check the drain tube (Part No. 115036) and the connector regularly. Replace if damaged.
- Always leave the chamber empty and the door ajar when not in use.
- Fully drain the reservoirs if preparing the autoclave for transit or storage.
- In-service inspection and testing of electrical equipment must be carried out routinely in accordance with local legislation.

Autoclave Fuses ⚠

Fuse x 2 (Fig. 1, item 12).

1. Switch off the autoclave. Safely isolate the autoclave from the electrical mains supply by physically unplugging BOTH ends of the power cable.
2. Remove the fuse cover using a screwdriver or small coin (turn anti-clockwise).
3. Inspect and renew the fuse if necessary. **USE THE CORRECT FUSE TYPE AND RATING.** Refer to Appendix 5: "Technical data".
4. Refit the fuse cover (turn clockwise).

Mains Cable Fuse ⚠

Fuse x 1

Refer to Appendix 5: "Technical data".

1. Switch off the autoclave. Safely isolate the autoclave from the electrical mains supply by physically unplugging BOTH ends of the power cable.
2. Remove the fuse from the mains plug.
3. Inspect and renew the fuse if necessary. USE THE CORRECT FUSE TYPE AND RATING. Refer to Appendix 5: "Technical data".
4. Refit the plug.

WEEE Regulations (Waste Electrical & Electronic Equipment Regulations)

The aim of the WEEE Regulations is to reduce the amount of waste going to landfill. All Eschmann products that must be recycled in accordance with the WEEE Regulations are marked with the "wheelie bin" symbol opposite.

Please contact Eschmann when one of our products, marked with the symbol, reaches the end of its working life. We will be able to advise on how to recycle and dispose of the product correctly.



Note: If we request that the product is returned to Eschmann, it must be decontaminated first. We will request a certificate.

Under the WEEE Regulations, manufacturers are held responsible for recycling waste electrical and electronic equipment (WEEE) placed on the market after 13 August 2005 that has reached the end of its working life. The regulations also place obligations to comply on distributors, retailers and end users of the equipment.

Service, Calibration & Certification

Please contact Eschmann to discuss servicing and certification requirements.

The autoclave must be serviced and calibrated by Eschmann or Eschmann trained engineers at 12 month intervals, or when the Service Required screen is displayed, whichever occurs sooner. Refer to Section 11.3. The autoclave must be periodically examined and certified against the Pressure Systems Safety Regulations 2000 (PSSR). Eschmann recommends this is performed 18 months from manufacture and every 14 months thereafter.

Appendix 4 : Trouble Shooting

Trouble Shooting Table

Fault	Action
Autoclave will not power-up	Check the mains supply, mains connections, autoclave fuses and mains cable fuse.
Autoclave powers-up but the screen is blank	Power autoclave off. Remove any item plugged into the USB port (Fig. 1, item 7). Power autoclave on. If unsuccessful, contact Eschmann.

Advisory Code Table

The autoclave continually checks that it is able to run a cycle and sterilise the load to the required standard.

If it encounters a problem it will inform you via the Advisory Screens:

- Water Management Screens.
- Service Screens.
- Advisory Screens:
  - POWER FAILURE
  - USER STOPPED CYCLE
  - SYSTEM STOPPED
  - ERROR

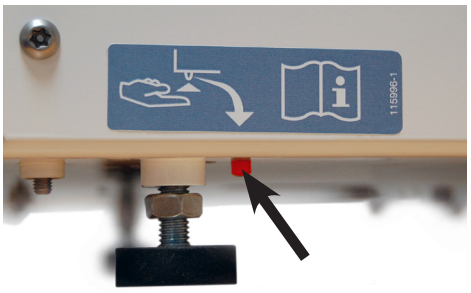
All advisory Screens are identified internally using an Advisory Code. These are shown in the Advisory Screens Table below.

Most of the problems referred to by the Advisory Screens can be rectified, allowing the cycle to continue.

In most cases, **press OK to clear the Advisory Screen** and follow the advice in the table below.

Note: ***The screens that cannot be cleared by the operator are the ERROR screens. Contact Eschmann. Eschmann require the Advisory Code from these screens to determine the problem.***

Advisory screens	Advisory code	Description	Action
POWER FAILURE	1	Power Failure	Check for intermittent mains supply and mains connections. Run cycle again.
USER STOPPED CYCLE	2	User Abort	Run the required cycle.
SYSTEM STOPPED	3	Door Lock Fail	Check for obstructions. Run cycle again.
	11	Temperature Synchronisation Fail	Power autoclave off / on. Run cycle again.
	15	Arbiters Disagree	Power autoclave off / on. Run cycle again.
	16	Invalid Cycle Type	Power autoclave off / on. Run cycle again.
	19	Temperature and Pressure Disagree	Visually check door seal. Clean mating face. Run cycle again.
	20	Temperature Sensors Disagree	Power autoclave off / on. Check chamber and load is dry. Run cycle again.
	21	T1 High During Sterilisation	Power autoclave off / on. Run cycle again.
	23	T1 Low During Sterilisation	Power autoclave off / on. Run cycle again.
	25	Not Enough Fresh Water	Fill with fresh water. Run cycle again.
	26	Too Much Waste Water	Empty waste water. Run cycle again.
	28	Air Detector Fault	Power autoclave off / on. Run Test T2 (refer to Appendix 7) and if successful run cycle again.
	29	Air/leak into Chamber	Power autoclave off / on. Visually check door seal. Clean mating face. Run cycle again. The load may be incorrect: only process one implant kit at a time using a B type cycle.

Advisory screens	Advisory code	Description	Action
SYSTEM STOPPED	30	Leak Test Fail	Leave autoclave to cool. Run test cycle again.
	31	Leak Test Pressure Rise	Visually check door seal. Clean mating face. Ensure chamber is dry. Run test cycle again.
	33	Door Not Closed	Power autoclave off / on. Run cycle again.
	34	CO Door Lock Fail	Power autoclave off / on. Run cycle again.
	35	Water Quality Fail mid-cycle	Change the water. Run cycle again.
	36	PR and/or GI Not In Running	Power autoclave off / on. Run cycle again.
	37	Leak Test Temperature Change	Leave autoclave to cool. Run test cycle again.
	41	Error CO Errored Out	Power autoclave off / on. Run cycle again.
	42	Error Wrong Hold Time	Power autoclave off / on. Run cycle again.
	43	Error CO Missed First Pat No.	Power autoclave off / on. Run cycle again.
	44	Error CO Process Sequence Error	Power autoclave off / on. Run cycle again.
	45	Error Unexpected End of Pat List	Power autoclave off / on. Run cycle again.
	48	Error Process Stage Failed	Power autoclave off / on. Run cycle again.
	155	Communications Failure	Power autoclave off / on. Run cycle again.
	156	Communications Failure	Power autoclave off / on first, then press OK to clear the SYSTEM STOPPED screen. Run cycle again.
	157	Communications Failure	Power autoclave off / on first, then press OK to clear the SYSTEM STOPPED screen. Run cycle again.
	160	State Sync Failed	Power autoclave off / on. Run cycle again.
	175	Pressure Not Equalised	Power autoclave off / on. Run cycle again.
	176	Safety Relay Failure	Visually check door seal. Clean mating face. Run cycle again or Leave autoclave to cool. Press the RESET button (Fig 1, item 14) Run cycle again. 
	201	Enclosure Temperature Too High	Leave autoclave to cool. Run test cycle again.
	202	Temperature Too High	Power autoclave off / on. Run cycle again.
	203	Temperature Too Low	Power autoclave off / on. Run cycle again.
	204	Pressure Too High	Power autoclave off / on. Run cycle again.

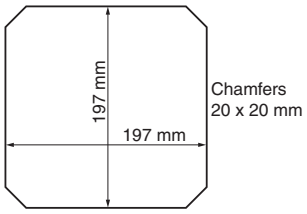
Advisory screens	Advisory code	Description	Action
	205	Pressure Too Low	Power autoclave off / on. Run cycle again.
	209	Stage Took Too Long	Power autoclave off / on. Run cycle again.
	210	Sterilisation Temperature Too Low	Power autoclave off / on. Run cycle again.
	211	Sterilisation Temperature Too High	Power autoclave off / on. Run cycle again.
	217	Control System cycle running indicator corrupt	Power autoclave off / on first, then press OK to clear the SYSTEM STOPPED screen. Run cycle again.
	223	Touch Screen Continuously Pressed	Power autoclave off / on. If persistent contact Eschmann.
	226	Cycle Check Failed	Power autoclave off / on. Run cycle again.
	228	Start Up Test Failed	Power autoclave off / on first, then press OK to clear the SYSTEM STOPPED screen. Run cycle again.
	231	Calculated Temperature Too High	Power autoclave off / on. Run cycle again.
	232	Calculated Temperature Too Low	Power autoclave off / on. Run cycle again.
	233	Difference between Calculated Temperature and Chamber Temperature too large	Power autoclave off / on. Run cycle again.
	909	Chamber Temperature Sensor	Power autoclave off / on. Run cycle again.
	910	Chamber Pressure Sensor	Power autoclave off / on. Run cycle again.
	911	Band Heater Temperature Sensor	Power autoclave off / on. Run cycle again.
	912	Steam Generator Temperature Sensor	Power autoclave off / on. Run cycle again.
	913	Ambient Temperature Sensor	Power autoclave off / on. Run cycle again.
	914	Water Temperature Sensor	Power autoclave off / on. Run cycle again.
	916	Unknown Sensor	Power autoclave off / on. Run cycle again.
	919	Wrong unit type	Press OK to clear the system stop screen. If persistent contact Eschmann.
	920	Unknown unit type	Press OK to clear the system stop screen. If persistent contact Eschmann.
	921	CO not fully configured	Press OK to clear the system stop screen. If persistent contact Eschmann.
	924	Water quality system fault	Check water quality. Power autoclave off / on. Run cycle again.
	996	Protective system temperature fault	Power autoclave off / on. Run cycle again. If persistent contact Eschmann.
	997	Protective system temperature fault	Power autoclave off / on. Run cycle again. If persistent contact Eschmann.
	998	Protective system pressure fault	Power autoclave off / on. Run cycle again. If persistent contact Eschmann.
ERROR	18	Protective system pressure fault	Power autoclave off / on. Run cycle again. If persistent contact Eschmann.
	177	Failed To Update Calibration Record	Contact Eschmann.
	178	Calibration Invalid	Contact Eschmann.
	206	Safety Valve Failure	Contact Eschmann.
	208	Safety Valve Failure	Contact Eschmann.

Appendix 5 : Technical Data

POWER SUPPLY		
Supply Voltage	Supply 230V (±10%) or 220V (-6%, +15%) See rating plate. 50/60 Hz a.c. ~ For use with alternating current	
Fuse Rating (panel)	2 x T12.5A, 440V (Part No. 112474)	
Fuse Rating (plug)	13A	
SAFETY CONDITIONS		
Electric Shock Protection	Class 1	
Pressure Relief Valve	Set pressure: 2.85barg	
STERILISING AND TEST CYCLE DATA		
Sterilising Time *(Sterilisation times can be increased to a max of 30 mins by an Eschmann or Eschmann trained engineer).*	3 minutes 20 seconds at 134 to 137°C, 18 minutes for the 134 18 cycle, 15 minutes at 121 to 124°C. Test cycles (Approx): T1: 20 mins; T2: SES 3000B: 15 mins, SES 3020B: 18 mins; T3: SES 3000B: 19 mins, SES 3020B: 23 mins.	
Drying Time- Empty (Approximate)	SES 3000B	SES 3020B
	134 B cycle: 16 mins	134 B cycle: 21 mins
	121 B cycle: 20 mins	121 B cycle: 30 mins
Operating Pressure (Absolute)	303.1kPa at 134°C, 330.7kPa at 137°C 204.1kPa at 121°C, 224.2kPa at 124°C	
MAXIMUM LOADS		
	SES 3000B	SES 3020B
Maximum load per tray, pouch rack or cassette	1.5kg	1.5kg
Maximum load for the porous load basket	1.0kg	1.5kg
Maximum weight per item	1.5kg	1.5kg
Maximum total load	5.0kg	6.0kg
Implant kit	1 x implant kit	1 x implant kit
WATER AND RESERVOIR		
Fresh Water Reservoir capacity	3800ml (maximum)	
Waste Water Reservoir capacity	4400ml (maximum)	
Minimum initial fill	1200ml (approximate)	
Volume used per cycle	SES 3000B	SES 3020B
	Cold: 939ml Hot: 740ml	Cold: 970ml Hot: 780ml
DIMENSIONS AND WEIGHT		
	SES 3000B	SES 3020B
Chamber Volume	17L	23L
Autoclave Depth	540mm	640mm
Autoclave Width	500mm	500mm
Autoclave Height	500/460mm	500/460mm
Autoclave Weight (empty)	44.6kg	48.2kg
Autoclave Weight (Full reservoirs and max load in chamber)	59.0kg	64.4kg
SHIPPING DIMENSIONS AND WEIGHT (includes unit, accessories and packing)		
	SES 3000B	SES 3020B
Depth	700mm	800mm
Width	680mm	680mm
Height	620mm	620mm
Weight	52.0kg	55.4kg
STANDARDS COMPLIANCE		
BS EN ISO 20417, BS EN 13060, BS EN 61010-1, BS EN 61010-2-040, BS EN ISO 14971, BS EN 61326, BS EN 62366, BS EN 13485, BS EN ISO 15223-1		

ENVIRONMENTAL REQUIREMENTS (contact Eschmann if required to operate outside these conditions)	
Transport and Storage:	
Ambient temperature range	-10°C to +50°C
Relative humidity range	30-70% RH non-condensing
Atmospheric pressure range	700 millibars to 1060 millibars
Operation:	
Ambient temperature range	+5°C to +40°C
Relative humidity range	20-80% RH non-condensing
Atmospheric pressure range	800 millibars to 1060 millibars
Altitude	Maximum 2000m (800 millibars)
Location	Suitable for indoor use only

USABLE SPACE	
Porous load basket (external)	280mm x 147mm x 87mm
Tray carrier	SES 3000B: Length 280mm x cross section shown SES 3020B: Length 390mm x cross section shown



MISCELLANEOUS		
Basic UDI-DI (BUDI-DI) identifier	506069061AUTOCLAVEF9	
Technical Lifetime	10 Years when used in accordance with these instructions, properly maintained and repaired.	
Applicability	SES 3000B Vacuum Autoclave s/n: L3BB4D1151	
This manual applies to autoclave models from:	SES 3020B Vacuum Autoclave s/n: LXBA1D1001	
Door Seal / Bacterial Filter Replacement	Door Seal : 1000 cycles / Bacterial Filter : 1000 cycles	
Autoclave Sound Level	SES 3000B: Max 62 dBA	SES 3020B: Max 66 dBA
Pollution degree	2	
Heat transmitted by the autoclave/ hr	SES 3000B: 2581kJ	SES 3020B: 3193kJ
Sounds	Autoclave Ready: 1 beep, 300ms Keypress: 1 beep, 100ms Cycle Start: 1 beep, 100ms Cycle End: 1 beep, 500ms Cycle Failed: 5 beeps, 100ms Incorrect PIN: 2 beeps 100ms	

SAFETY FEATURES

Eschmann autoclaves are designed to be safe and effective. No changes should be made to them except by an Eschmann or Eschmann trained engineer. In particular, the following safety features must not be interfered with, circumvented or overridden:-

- Door closed (position) sensor and door locks (position) sensors. These prevent a cycle starting if the door is not closed and locked.
- Pressure Relief Valve (safety valve) set at 2.85+10% barG.
- Independent cycle control and monitoring. There are two microcomputers independently monitoring each other and other autoclave components. Either is able to stop a cycle and place the autoclave into a safe condition in the event of a failure. In the case of a venting valve failure the autoclave may not be able to eject water and steam (i.e. pressure will remain until cool) and the door will remain locked until the pressure / temperature has dropped to a safe level.
- Overheat Control. The microcomputer operates in conjunction with an independent manual reset thermostat to protect the steam generator from overheating.
- Band Heater Thermostat. This prevents the band heater exceeding a preset temperature.
- Pressure door switch. Prevents the door being opened when the residual chamber pressure is too high by removing power to a door lock so that it locks the door closed.

Cycle Compliance Chart

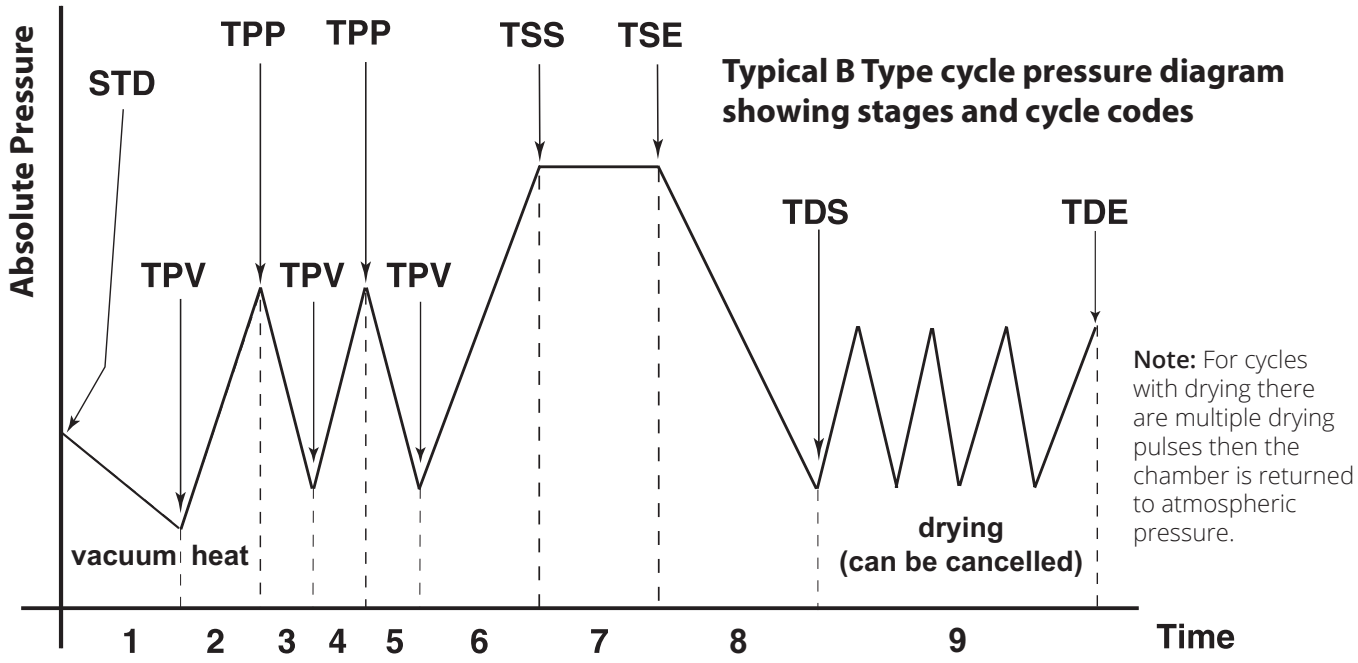
In accordance with BS EN 13060 the recommended type tests for the listed B type and N type cycles are:

	Sterilisation Cycle Type and Cycle Number	
Type Tests	**B type cycle**	**N type cycle**
Dynamic steriliser chamber pressure	✓	
Air Leakage	✓	✓
Empty chamber	✓	✓
Solid load	✓	✓
Small porous loads	✓	
Full porous load	✓	
Narrow lumen	✓	
Dryness, solid load	✓	
Dryness, porous load	✓	
Non-condensable gases		✓

Load Chart

Note: Cycle times will vary depending upon conditions and load.		STERILISATION CYCLES								TEST CYCLE
		134 B 134 B+ 134 B 18		**134° N**		**121° B**		**134° B HP (Handpiece)**		**T3**
		SES 3000B	**SES 3020B**	**SES 3000B**	**SES 3020B**	**SES 3000B**	**SES 3020B**	**SES 3000B**	**SES 3020B**	
Duration of drying phase (full load)		134B,134B 18 20min 134 B+ 40 mins	134B,134B 18 25min 134 B+ 50 mins	8 mins	10 mins	20 mins	30 mins	OFF	OFF	N/A
Cycle Duration (Including drying if default on)	134 B	Full load 53 mins Empty 32 mins	Full load 72 mins Empty 48 mins	Full load 34 mins Empty 21 mins	Full load 44 mins Empty 31 mins	Full load 67 mins Empty 48 mins	Full load 89 mins Empty 64 mins	Full load 35 mins Empty 18 mins	Full load 45 mins Empty 25 mins	SES 3000B 19 mins SES 3020B 23 mins
	134 B+	Full load 74 mins Empty 54 mins	Full load 95 mins Empty 72 mins							
	134 B 18	Full load 67 mins Empty 47 mins	Full load 85 mins Empty 62 mins							
Sterilisation Temperature		134-137°C		134-137°C		121-124°C		134-137°C		134-137°C
Sterilisation Pressure		303.1-330.7kPa		303.1-330.7kPa		204.1-224.2kPa		303.1-330.7kPa		303.1-330.7kPa
Duration of plateau phase		3 min.20 secs		3 min.20 secs		15 mins		3 min.20 secs		3min.20 secs
Default drying setting		ON		ON		ON		OFF		N/A
LOAD TYPE	Solid items Unwrapped	YES		YES		YES		YES		B Type Helix Test Device Refer to Appendix 1.
	Solid/ hollow/ narrow lumen items Unwrapped	YES		NO		YES		YES		
	Solid/ hollow/ narrow lumen items Wrapped/ pouched	YES		NO		YES		NO		
	Porous loads	YES		NO		YES		NO		
	1 x implant kit	YES (134 B+ recommended)		NO		YES (134 B+ recommended)		NO		

Detailed B Type Cycle Information

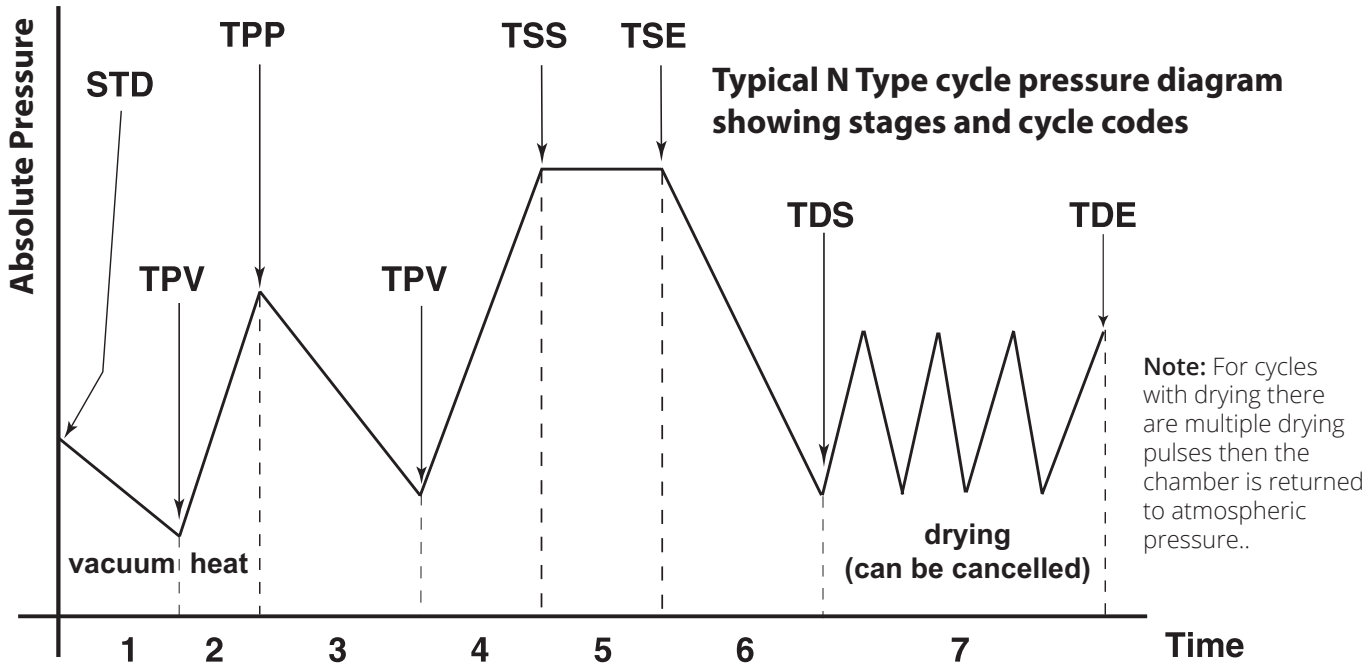


Typical B Type cycle pressure diagram showing stages and cycle codes

Note: For cycles with drying there are multiple drying pulses then the chamber is returned to atmospheric pressure.

Progress Indicator	Key	Stage Detail
	1	Initial air removal vacuum pulse to 20kPa.
	2	Steam introduced into chamber. Pressure increases to 170kPa.
	3	Depressurised to above atmospheric pressure. Air removal vacuum pulse to 24kPa.
	4	Steam introduced into chamber. Pressure increases to 170kPa.
	5	Depressurised to above atmospheric pressure. Air removal vacuum pulse to 26kPa.
	6	Steam introduced into chamber, heating to sterilisation temperature.
	7	Sterilising For 134 cycles, temperature held within 134-137°C. For 121 cycles, temperature held within 121-124°C
	8	Discharge phase.
	9	Drying phase comprising multiple vacuum pulses and chamber heating. The number of vacuum pulses is dependent upon the autoclave type and cycle selected. Note that drying is off by default for the 134 B HP (Handpiece) cycle. Upon completion, the cycle is returned to atmospheric pressure.

Detailed N Type Cycle Information



Progress Indicator	Key	Stage Detail
	1	Initial air removal vacuum pulse to 20kPa.
	2	Steam introduced into chamber. Pressure increases to 170kPa.
	3	Depressurised to above atmospheric pressure. Air removal vacuum pulse to 24kPa.
	4	Steam introduced into chamber, heating to sterilisation temperature.
	5	Sterilising, temperature and pressure held within 134-137°C
	6	Discharge phase.
	7	Drying phase comprising multiple vacuum pulses and chamber heating. Upon completion, the cycle is returned to atmospheric pressure.

Appendix 6 : Accessories

For prices and ordering call Eschmann, telephone 01903 753322

Essential Test Devices and Logbook

8793436 Essential Helix test (x 250)
8793547 Essential TST (x 250)
119858 Daily/ Weekly Test Logbook - Vacuum





RO Water System Including UV Light

8785154UVCSHW



HFiT Cassettes

HFiT 5 'Compact' Stainless Steel Cassette (9.5cm x 18cm)

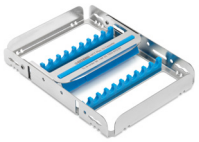
8722802	Stainless Steel Blue	8722805	Stainless Steel Yellow
8722803	Stainless Steel Red	8722806	Stainless Steel Silver
8722804	Stainless Steel Green	8722808	Stainless Steel White

HFiT 10 'Examination' Stainless Steel Cassette (13.5cm x 18cm)

8722812	Stainless Steel Blue	8722815	Stainless Steel Yellow
8722813	Stainless Steel Red	8722816	Stainless Steel Silver
8722814	Stainless Steel Green	8722818	Stainless Steel White

HFiT 20 'Standard' Stainless Steel Cassette (26cm x 18cm)

8722822	Stainless Steel Blue	8722825	Stainless Steel Yellow
8722823	Stainless Steel Red	8722826	Stainless Steel Silver
8722824	Stainless Steel Green	8722828	Stainless Steel White



Standard Trays (28cm x 18cm)

8724451	Aluminium Silver	8724454	Aluminium Green
8724452	Aluminium Blue	8724455	Aluminium Yellow
8724453	Aluminium Red	8724456	Aluminium Turquoise
8725450	Stainless Steel		

Examination Trays (14cm x 18cm)

8724461	Aluminium Silver	8724464	Aluminium Green
8724462	Aluminium Blue	8724465	Aluminium Yellow
8724463	Aluminium Red	8724466	Aluminium Turquoise
8725460	Stainless Steel		



SES 3020B Long Tray (37.9cm x 18.6cm)

8725470

MyEschmann Hub

The MyEschmann Hub captures cycle data and transmits to the MyEschmann Cloud. Users can access and review cycle data remotely, ensuring accurate monitoring and record-keeping for compliance and analysis.

8749020



Spares

112733	Bubble Level	8727078	Printer Rolls (x5)
115036	Spare Drain Tube	115800	USB Memory Stick
113371	Mains Lead (UK)	113372	Mains Lead (EURO)
112474	Mains fuse	8721367	Thermal Printer
115190	Bacterial Air Filter	115946	Door seal

Miscellaneous Accessories

8703310	Box of 200 small sterilisation pouches (90mm x 230mm)
8703318	Box of 200 medium sterilisation pouches (133mm x 254mm)
8727121	Tray Lifter
8704066	Pouch Rack (11 rung)

Service

The Autoclave must only be serviced by an Eschmann or Eschmann trained engineer. We also recommend a program of ongoing service and maintenance using only Eschmann spare parts.

Eschmann products are supported by a worldwide network of fully trained engineers, offering high quality Eschmann spare parts. For further information on the range of Service Contracts available, please contact your local Eschmann representative.

Eschmann can be contacted during normal office hours. Please quote the model and serial number exactly as printed on the product label. Please use the contact details below.

IMPORTANT: The design of the autoclave pressure vessel is certified by a third party accredited test house to International Standards. In order to ensure safety and to comply with UK and/or International regulations, the vessel and fittings should be inspected by a competent person at regular intervals. We recommend that this is carried out at least once every 14 months by an Eschmann or Eschmann trained engineer.

Safety Reporting

Any serious incident that occurs with this medical device should be reported to Eschmann Technologies Limited and your local Competent Authority

Warranty

This product and purchased accessories are warranted for a minimum period of 12 months to be free from defects in materials and workmanship at the time of delivery.

Eschmann will be under no liability for any defect arising from fair wear and tear, negligence, wilful damage, misuse, abnormal working conditions, failure to follow the manufacturer's instructions, unauthorised alteration or repair of hardware, unauthorised or accidental alteration of software or configuration, lost profits, commercial loss, economic loss, or loss arising from personal injury. We may, at our discretion, raise a charge for any faults repaired that fall outside the warranty cover. Where charges are necessary, replacement parts will be charged at manufacturers' list prices and labour will be charged at the prevailing hourly rate. Repairs performed by Eschmann carry a 3-month parts and labour warranty.

The details in this manual are correct at time of going to press and supersede details previously published elsewhere. Information, technical specifications and statements made in this publication may be subject to change without prior notice. The Company reserves the right to modify or improve the product referred to.

EU Authorised Representative

Casus Europe B.V. Lange Viestraat 2b, 3511 BK Utrecht,
The Netherlands

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