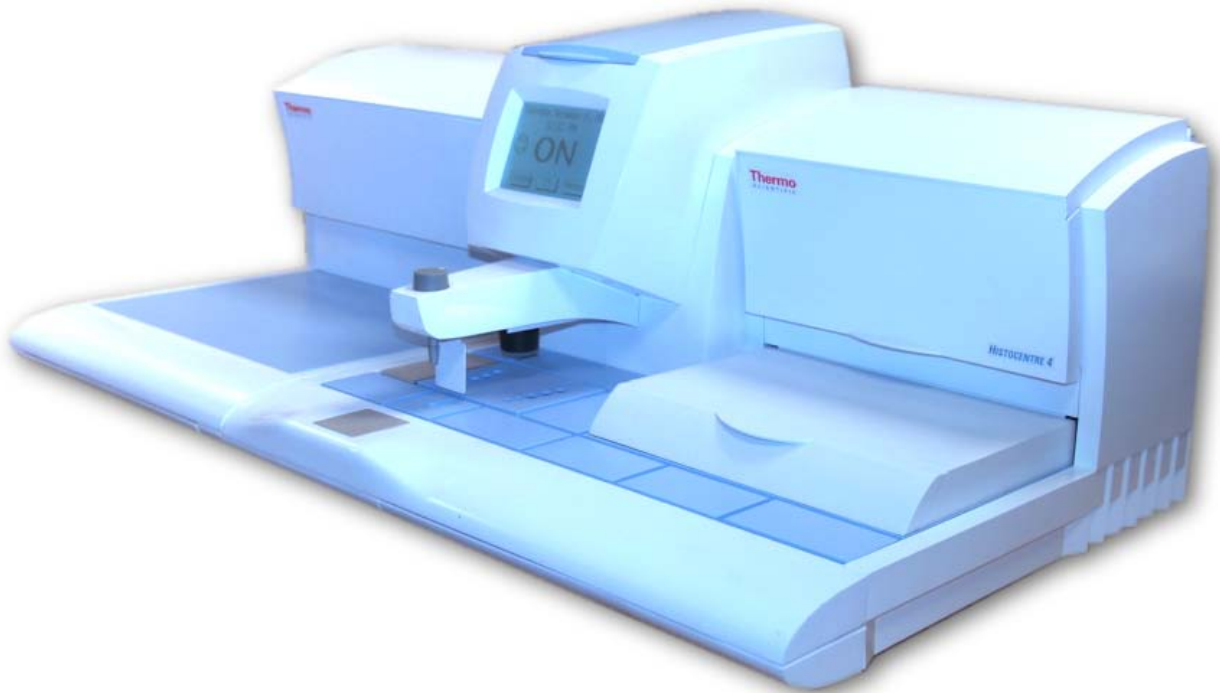


Thermo Scientific  
*HistoStar™*  
Operator Guide  
A81010100 Issue 2



**Thermo**  
SCIENTIFIC



# Legal Information

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## Standards

The Thermo Scientific HistoStar meets the following CE Mark requirements:

*In Vitro Diagnostic Directive 98/79/EC*

*Low Voltage Directive 2006/95/EC*

This IVD equipment complies with the emissions and immunity requirements of IEC 61326-2-6:2006.

This equipment has been designed and tested to CISPR 11 Class A. In a domestic environment it may cause radio interference, in which case it may be necessary to take measures to mitigate the interference.

The electromagnetic environment should be evaluated prior to operation of the device.

Do not use this device in close proximity to sources of strong electromagnetic radiation (eg: unshielded intentional RF sources) as these may interfere with the proper operation.

*The Thermo Scientific HistoStar™ is referred to throughout this, and other supporting documents as the HistoStar .*

*Para Trimmer® is a registered trademark of Thermo Fisher Scientific.*

## Refrigerant Warning

The Cold Module contains fluorinated greenhouse gas covered by the Kyoto Protocol and is hermetically sealed.

The refrigerant used is 100 grams of R134a (220-240V units); this has a global warming potential of 1300.

The refrigerant used is 100 grams of R134a (100-120V units); this has a global warming potential of 1300.



# Symbols

The following symbols and conventions may be used throughout this document and on the instrument:



This symbol is used on the equipment, or in a document, to indicate that instructions must be followed for safe and correct operation. If this symbol appears on the instrument, always refer to the operator guide.



This symbol is used on the equipment, or in a document, to indicate that there may be a biohazard associated with the instrument. Always act with common sense and be aware of the samples used. Take suitable precautions.



This symbol indicates that a surface is hot. If this symbol appears on the instrument or in the documentation, always refer to the operator guide. Take suitable precautions.



This symbol indicates that a surface is cold. If this symbol appears in the documentation, always refer to the operator guide. Take suitable precautions.



This symbol is used on the equipment, or in a document, to indicate that harmful chemicals are used. Refer to the Material Safety Data Sheets for the chemicals used. Always act with common sense and be aware of local laboratory procedures. Take suitable precautions.

**A WARNING IS GIVEN IN THE DOCUMENTATION IF THERE IS A DANGER OF PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT OR SAMPLES.**

## Note

*Notes give additional information about a job or instruction, but do not form part of the instruction.*



# Table of Contents

Safety Information.....	1
How To Use This Guide.....	5
Chapter 1 - Introducing HistoStar.....	7
Introduction to HistoStar.....	7
Compatibility.....	8
Identification of Parts.....	9
System Interfacing.....	13
System Specification.....	15
Chapter 2 - Basic Operation.....	17
Safety.....	17
Switching On HistoStar.....	18
Operating Method.....	20
Using the Para Trimmer.....	24
Switching Off HistoStar.....	25
Chapter 3 - Setup.....	27
Unpacking HistoStar.....	27
Connections.....	34
Setup and Location.....	37
Setting Workflow Direction.....	40
Filling with Wax.....	42
Dispense Lever Adjustment and Wax Flow Control.....	44
System Settings.....	47
Time and Date.....	49
Temperature Units.....	51
Temperature Set Points.....	52
Timer Settings.....	55
Display and Audio.....	58
Instrument Lighting.....	60
Forceps Block Power Settings.....	65
Language Selection.....	67
Touchscreen Calibration.....	69
Electric (Heated) Forceps.....	71
Chapter 4 - Troubleshooting.....	77
Troubleshooting Tables.....	77

Touch Screen Display.....	77
Wax Tank and Dispense.....	78
Forceps Block.....	80
Hot Spot.....	81
Tissue Storage Tank.....	82
Temperature Sensors.....	83
Base Mould Storage.....	84
Cold Spot.....	85
Cold Plate.....	86
Electric Forceps.....	87
Poor Sectioning.....	88
Heater System Check.....	89
Chapter 5 - Cleaning and Maintenance.....	91
Safety.....	91
General Instrument Cleaning.....	92
Daily Tasks.....	93
Weekly Cleaning.....	94
Fuse Replacement.....	95
Emptying the Waste Wax Drawer.....	97
Using the Wax Draining Assembly.....	99
Draining the Tissue Storage Tank.....	103
Draining the Wax Tank.....	106
Appendices.....	111
Appendix A - Spares and Accessories.....	111
Appendix B - Packing Instructions, Removal from Use and Disposal.....	113
Appendix C - Screen maps.....	114
Appendix D - Approved Reagent List.....	115
Index.....	117



# Safety Information

## Introduction

Thermo Fisher Scientific products are designed for convenient and reliable service; however, incorrect actions by a user may damage the equipment, or cause a hazard to health.

The following sections contain important information for the safe setup and use of the instrument.



**All users must read and understand the following sections before using the instrument.**

## General Safety

This instrument, as supplied, conforms with IEC61010-1, IEC 61010-2-010 and IEC61010-2-101; however, the addition of chemical introduces potential hazards.

As with all scientific equipment, due care and good laboratory practice must be employed when dealing with these chemicals, and consideration must be given to the potential for hazard when dealing with particular chemicals.

Be aware that many of the reagents used with this instrument may be flammable. Do not introduce any source of ignition into, or near, the instrument once it has been loaded with reagents.

Do not remove any panels or covers. The instrument does not have any user serviceable parts.

The instrument must be properly connected to a good earth (ground) via the Mains input supply.

Position the instrument such that it is possible to interrupt the Mains supply at the source by removing the plug from the socket.

If the equipment is used in a manner not specified by Thermo Fisher Scientific, the protection offered by the equipment may be impaired.

Make sure that there is at least 100mm (4in) clearance around any fan inlets on the instrument.

In compliance with statutory requirements all our equipment is designed to accepted standards of safety. Its use does not entail any hazard if operated in accordance with the instructions given in the documentation. However, the following safety precautions must be obeyed:

- All users must have read and understood the Operator Guide and these safety instructions; and only operate the unit in accordance with the instructions.
- Potentially lethal voltages above 110V a.c. or 50V d.c. are present inside the instrument. Do not remove any access covers unless specifically instructed to do so.
- It is important that normal standards of safety and good laboratory practices are employed. Always use common sense when operating the instrument.
- Any problems and queries should be referred to your Thermo Fisher Scientific supplier.
- Correct maintenance procedures are essential for consistent performance. It is recommended that a Maintenance Contract is taken out with our Service Department.
- Use only factory approved accessories or replacement parts with this instrument.
- Only use reagents recommended in the Operator Guide.

## Chemical Safety

**THE INTRODUCTION OF CHEMICALS CREATES POTENTIAL HAZARDS AND THERMO FISHER SCIENTIFIC HAS ADOPTED THE FOLLOWING POSITION WITH REGARD TO THE SUBJECT OF VOLATILE CHEMICALS USED IN MEDICAL LABORATORIES:**

- Non-specified chemicals are used in the instrument at the customers own risk.
- All the chemicals recommended by Thermo Fisher Scientific have auto-ignition temperatures considerably above any surface temperature that can be reached during a single fault failure on the instrument. The paraffin wax present will not reach a temperature that will produce flammable vapour.
- The instrument contains no source of ignition in any areas of the instrument where chemicals are stored, or are likely to leak into in a single fault condition.
- The operator is fully aware of the contents of the specification documents detailing the properties of the chemicals they are using.
- The operator has carried out any legally required assessment of chemicals used and is using good laboratory practice.



**Some chemicals which may be used during operation are flammable - do not use sources of ignition in the vicinity of the instrument when it is loaded with reagents.**



**Harmful chemical vapours such as xylene and toluene may be emitted during the normal operation of some instruments, and the operator should be aware of suitable precautions and safety measures.**

## Environment

This product is required to comply with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:



Thermo Fisher Scientific has contracted with one or more recycling / disposal companies in each EU Member State, and this product should be disposed of or recycled through them.

Further information on Thermo Fisher Scientific 's compliance with these Directives, the recyclers in your country, and information on Thermo Fisher Scientific products which may assist the detection of substances subject to the RoHS Directive are available at:

[www.thermo.com/WEEERoHS](http://www.thermo.com/WEEERoHS)

### **Warranty Statement**

We at Thermo Fisher Scientific are proud of our quality, reliability and of our after-sales service. We continuously strive to improve our service to our customers.

Please ask your distributor or Thermo Fisher Scientific representative about Service Contracts which can keep your purchase in peak condition for many years to come.

Warranty provisions necessarily vary to comply with differences in national and regional legislation. Specific details can be found in the delivery documentation or from your dealer or representative.

Please note that your warranty may be invalidated if:

- This instrument is modified in any way.
- Accessories and reagents which have not been approved by Thermo Fisher Scientific are used.
- The instrument is not operated or maintained in accordance with the instructions in the Operator Guide.

**Product Return Safety Declaration**



**PRODUCT RETURN SAFETY DECLARATION**

**Part 1 Decontamination Certificate**

Any instrument or part of any instrument must be clean before being returned, and where necessary accompanied by a completed Decontamination Certificate. Should the instrument or any part of it be received in an unclean condition, or Thermo Fisher Scientific consider it to be a hazard, the instrument or part will be returned unrepaired at the expense of the customer.

It is important that the certificate is forwarded by post or fax, and a copy attached to the exterior of the container. Containers will not be opened until the company is in possession of the required certificate.

This form **MUST** be completed by the customer and **NOT** by a Thermo Fisher or distributor employee.

If an instrument or part is to be returned to Thermo Fisher Scientific, please note the following:

- 1 If the instrument or any part of it has been exposed to, or been in contact with potential pathogenic or radioactive material, it is essential that it is decontaminated.
- 2 Set procedures are laid down in the European Health and Safety Directives for decontamination. To avoid any misunderstanding, we request that all instruments or parts returned to us must be accompanied by a certificate stating the following:

We certify that this (Model)..... Serial No.....

- has not been exposed to pathogenic, radioactive or other hazardous material and has been cleaned

OR

- has been decontaminated and cleaned (if exposed to the above) according to approved procedures following exposure to:

• Has the instrument been used for work with human or animal Transmissible Spongiform Encephalopathies, e.g. Creutzfeld-Jacob disease, Scrapie or BSE?  
**YES / NO**  
 If yes, please contact Thermo Fisher Service before taking any further action.

Signed ..... Position .....

Name (Block Capitals) .....

Company or Organisation .....

Full Address .....

---

**Part 2 Guidelines for Returning Instruments**

Please use the checklist below to ensure that the instrument being returned is ready for collection.

- All reagents / wax removed from instrument, including vapour traps (if applicable).....
- Accessories are secured / itemised .....
- Instrument has had transit clamps fitted as per Operator Guide (if applicable).....
- Instrument is packed in original packaging..... YES / NO

RMA NUMBER .....

CARRIER .....

FOR ATTENTION OF .....

# How To Use This Guide

## Introduction

The Thermo Scientific HistoStar is an ergonomically designed tissue embedding system for use in laboratories by appropriately trained medical laboratory technicians familiar with tissue embedding techniques and laboratory equipment.

Before operating this instrument the user should have read and understood the contents of this manual, paying particular attention to any safety information.

## Chapter Summary

### Chapter 1 - Introducing HistoStar

This chapter gives a tour of the instrument and its features. It describes the different parts of the instrument and gives general information with regards to interfacing with the system.

### Chapter 2 - Basic Operation

This chapter explains how to use the HistoStar on a day-to-day basis.

### Chapter 3 - Setup

This chapter explains the procedures used to set-up the HistoStar . The information contained in this chapter also explains how users can set their own preferences to help HistoStar to fit into their workflow more efficiently.

### Chapter 4 - Troubleshooting

This chapter is intended to help operators identify and cure commonly encountered issues.

### Chapter 5 - Cleaning and Maintenance

This chapter describes the day-to-day cleaning schedule for HistoStar . It also explains any operator maintenance tasks which may be required, either as part of the cleaning schedule, or as a remedy to a problem listed in the troubleshooting section of this document.



# Chapter 1 - Introducing HistoStar

## Introduction to HistoStar

The HistoStar is an ergonomically designed, precision engineered, tissue embedding system, comprising two temperature controlled modules.

The Embedding Module includes a base mould storage compartment, a wax reservoir, a tissue storage tank, a wax dispenser and a Para Trimmer.

HistoStar can be used with either heated or un-heated forceps.

The temperature of various elements can be set using the built-in touchscreen user interface.

Fixed LED lighting is incorporated into the unit in order to illuminate the main working areas.

The Cold Module consists of a temperature regulated cold plate, which can be linked to the Embedding Module or used independently.

## **Compatibility**

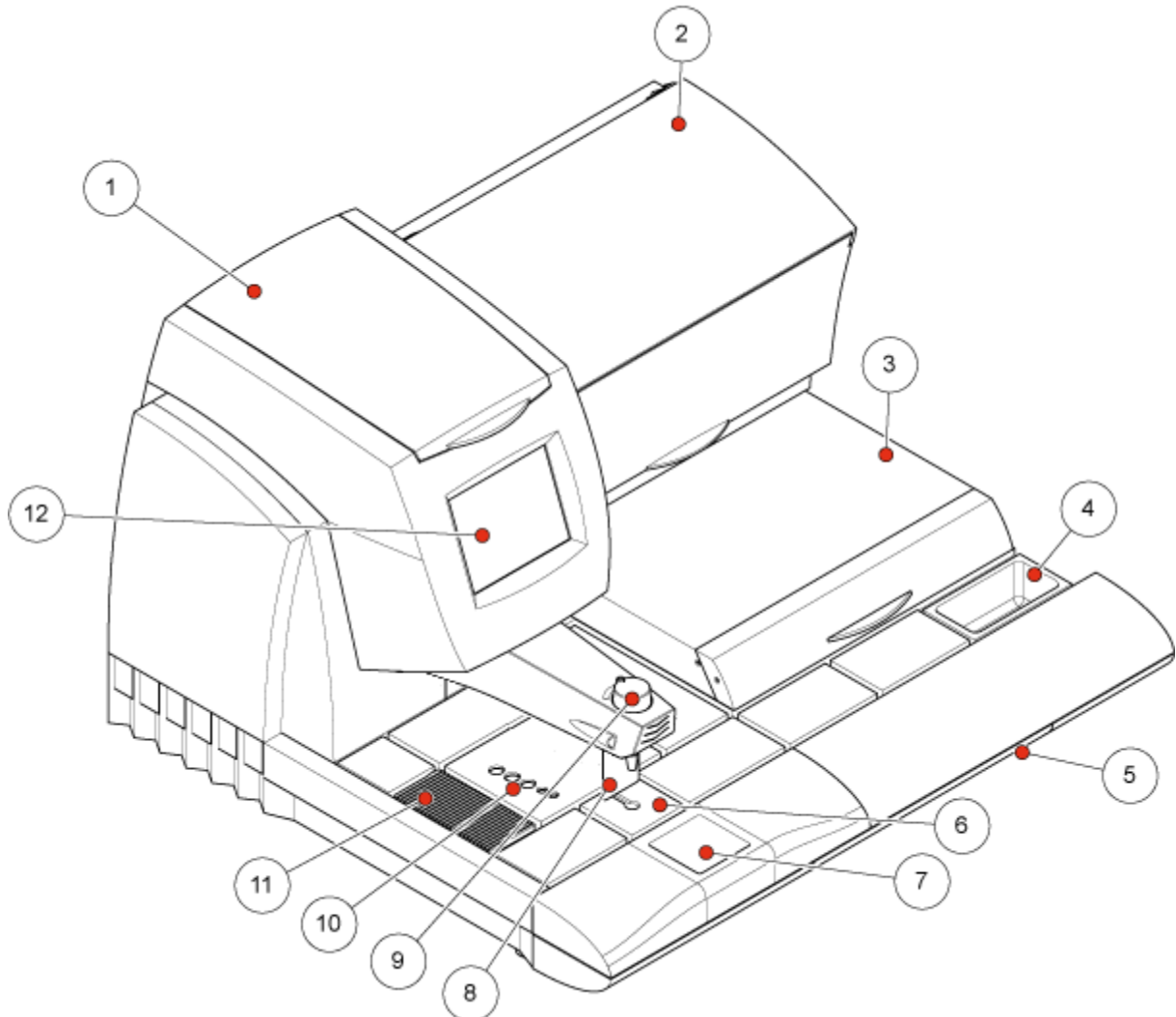
The HistoStar is designed to be compatible with most tissue cassettes and moulds, including Super Mega Cassettes and SecureSette.

It is also designed to be compatible with most brands of histology grade paraffin wax - see Appendix D - Approved Reagent List



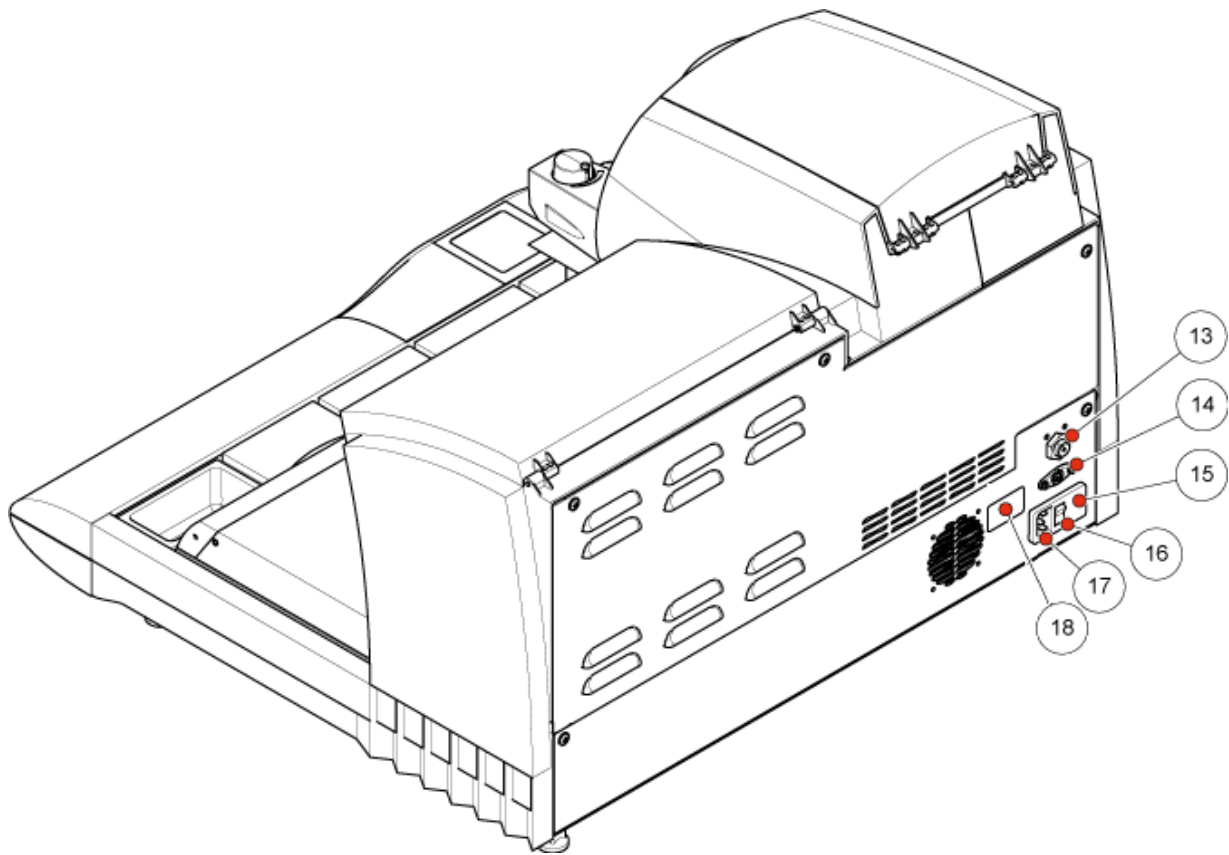
## Identification of Parts

### Embedding Module



*Heated Module - Front View*

- |   |                                      |
|---|--------------------------------------|
| 1 - Wax Tank Cover  | 7 - Cold Spot                        |
| 2 - Base Mould Storage Compartment<br>(Serial Number Label is inside) | 8 - Dispense Lever                   |
| 3 - Tissue Storage Tank   | 9 - Wax Dispense Flow Control        |
| 4 - Cassette Lid Storage Dish   | 10 - Forceps Block / Removable Cover |
| 5 - Waste Wax Drawer  | 11 - Para Trimmer™                   |
| 6 - Hot Spot  | 12 - Touchscreen                     |



*Heated Module - Rear View*

**13 - Footswitch Connector**

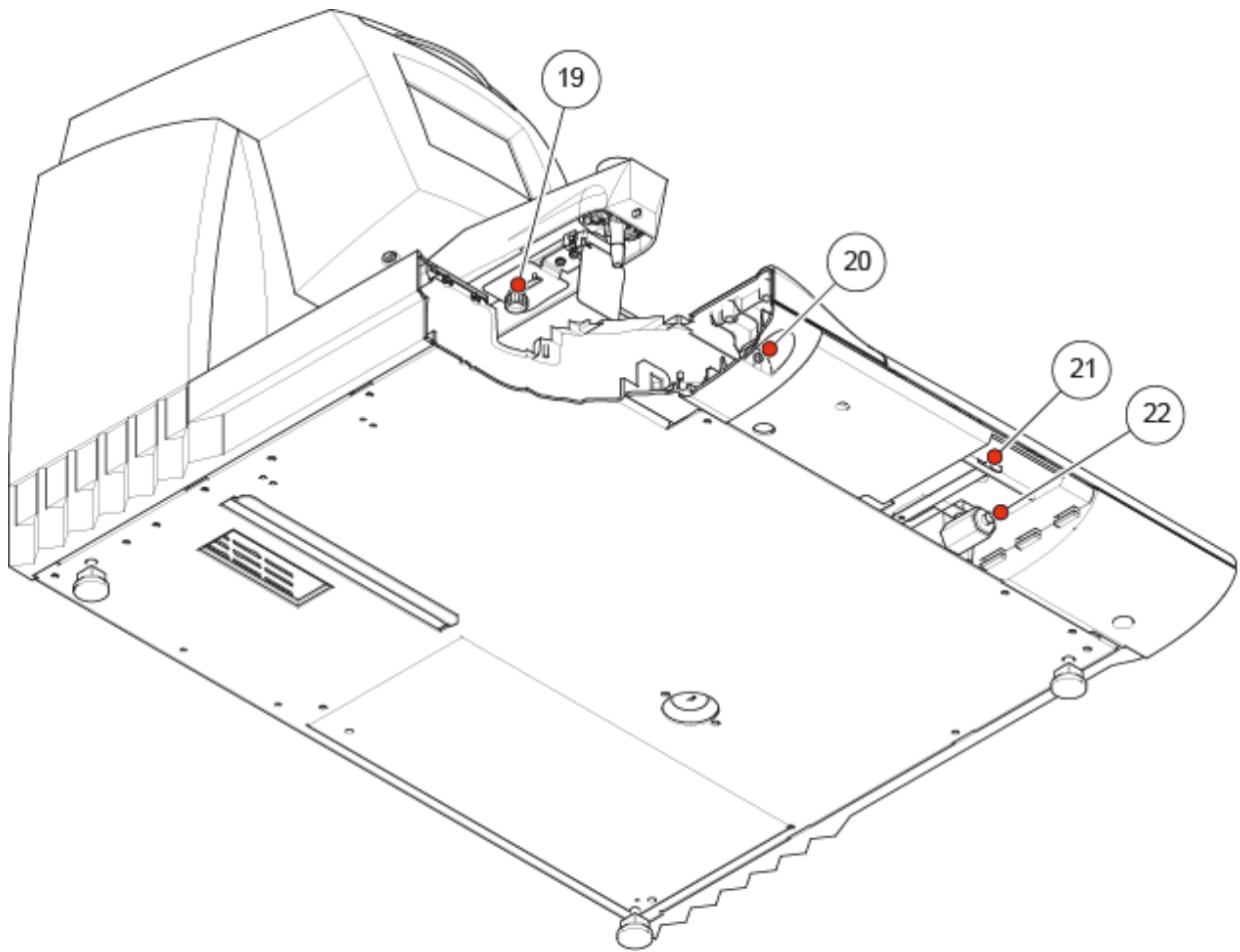
**14 - Cold Plate Timer Connector**

**15 - Fuse Drawer**

**16 - Power Switch**

**17 - Mains Power Connector**

**18 - Rating Plate**

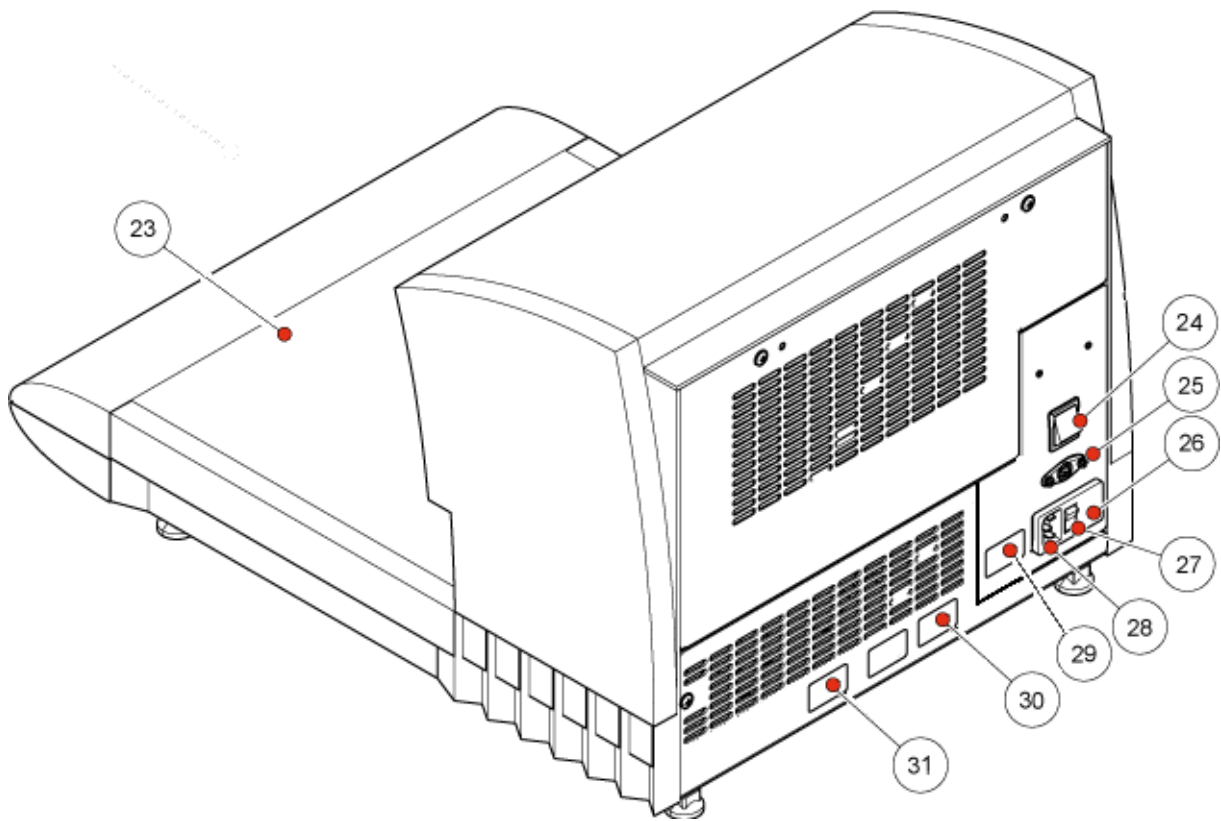


*Heated Module - Underside View*

19 - Dispense Lever Position Adjustment Knob  
20 - Heated Forceps Connector

21 - Tissue Storage Tank Drain Valve Lever  
22 - Tissue Storage Tank Drain

## Cold Module



*Cold Module - Rear View*

- |                                 |                            |
|---------------------------------|----------------------------|
| 23 - Cold Plate                 | 28 - Mains Power Connector |
| 24 - Timer Control Switch       | 29 - Rating Plate          |
| 25 - Cold Plate Timer Connector | 30 - Serial Number Label   |
| 26 - Fuse Drawer                | 31 - Refrigeration Label   |
| 27 - Power Switch               |                            |

## System Interfacing

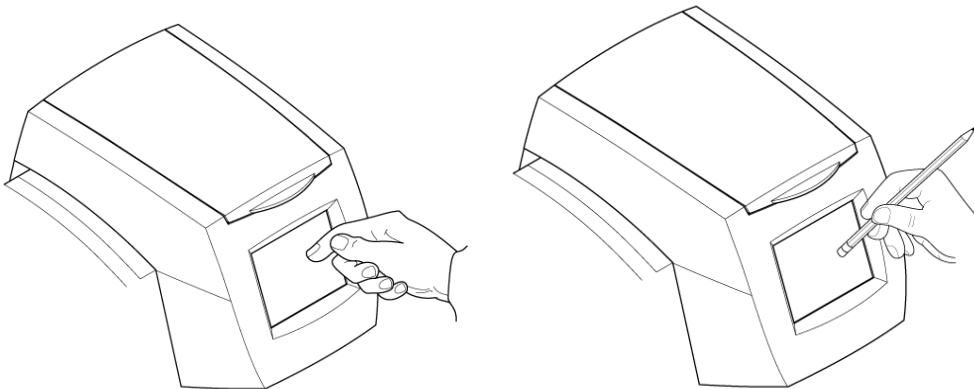
### Using the Touchscreen

The HistoStar has an embedded touchscreen user interface which is used to set all preferences and timer functions.

#### Note

*Avoid using sharp or pointed objects to press buttons on the touchscreen.*




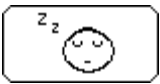

*It is recommended that a clean finger is used to operate the touchscreen. However, if you require a stylus, the eraser-tipped end of a pencil (or similar) is suitable.*



The touchscreen is used to alter all the user preferences and setup features - see System Settings.

**Buttons**

The following image buttons occur throughout in the user interface.

Button Image	Description	Action(s)
	<b>Return</b>	Returns the user to the previous screen
	<b>Left and Right</b>	Used to scroll through lists
	<b>Up and Down</b>	Used to increase or decrease values and scroll through lists
	<b>Sleep</b>	Used to enter 'Sleep Mode'
	<b>Timer Off</b>	Used to disable the timer function

**Note**

*There are many text buttons throughout the user interface which perform specific actions depending on the screen. These are explained in the relevant sections of this document.*

## System Specification

### Embedding Module

Physical Specification		
Height (doors closed)	430 mm	17 in
Height (doors open)	670 mm	26½ in
Width	650 mm	25½ in
Depth	587 mm	23 in
Weight (without wax)	25 kg	55 lbs
Weight (with wax)	35 kg	77 lbs

Electrical Specification	
Voltage	100 - 120V~ / 220 - 240V~
Frequency	50 / 60 Hz
Power	700VA
Fuses	2 x T10AH

Environmental Specification	
Temperature (Operating Limits)	+5°C to +40°C (+41°F to +104°F)
Temperature (Recommended Operation)	+17°C to +27°C (+63°F to +80°F) <b>Note:</b> <i>Performance may deteriorate when operated outside of this temperature range.</i>
Temperature (Transport / Storage)	-25°C to +55°C (-13°F to +131°F) +70°C (+158°F) for short exposure
Relative Humidity	Max. 80% RH up to 31°C Decreasing linearly to 50% RH at 40°C
Altitude	Up to 2,000 m (6,500 ft)
Pollution Degree	2
Over Voltage Category	II

**Cold Module**

Physical Specification		
Height	365 mm	14½ in
Width	430 mm	17in
Depth	585 mm	23 in
Weight	20kg	44lbs

Electrical Specification		
Voltage	220V~ - 240V~	100 - 120V~
Frequency	50 / 60 Hz	50 / 60 Hz
Power	230VA	230VA
Fuses	2 x T4AH	2 x T10AH

Environmental Specification	
Temperature (Operating Limits)	+5°C to +40°C (+41°F to +104°F)
Temperature (Recommended Operation)	+17°C to +27°C (+63°F to +80°F) <b>Note:</b> <i>Performance may deteriorate when operated outside of this temperature range.</i>
Temperature (Transport / Storage)	-25°C to +55°C (-13°F to +131°F) +70°C (+158°F) for short exposure
Relative Humidity	Max. 80% RH up to 31°C Decreasing linearly to 50% RH at 40°C
Altitude	Up to 2,000 m (6,500 ft)
Pollution Degree	2
Over Voltage Category	II



## Chapter 2 - Basic Operation

### Safety

Before operating the HistoStar, ensure that the following safety statements have been read and understood.



Do not use the HistoStar in the presence of combustible chemicals as fire or explosion may occur.



Molten wax is hot and can cause severe burns.



Do not overfill the wax tank.



When dealing with multiple specimens at once, ensure suitable precautions are taken to avoid mix ups.



Cold plate should be switched off when not in use to prevent excessive frost build up.



Ensure all suitable precautions are taken if handling infectious materials.



It is recommended that the waste wax drawer is emptied daily.



Periodically check the temperature of the wax in the wax tank using a calibrated thermometer. Compare the measured value with the reading on the touchscreen display. The two readings should be within  $\pm 2.0^{\circ}\text{C}$  of each other at any setting. If this is not the case, contact your local Thermo Fisher Scientific representative.



Do not use wax with a melting point in excess of  $70^{\circ}\text{C}$  ( $167^{\circ}\text{F}$ ) as it may not melt.



The HistoStar is sealed in critical areas to prevent spilled molten wax from leaking inside the unit. In the event of a large spillage, inspect the unit thoroughly for signs of leakage into the interior. If such leakage is suspected, remove the unit from service immediately and contact the Thermo Fisher Scientific Service Department.



The surface of the main deck on the HistoStar Embedding Module is hot.



The surface of the cold plate on the HistoStar Cold Module is very cold.

## Switching On HistoStar

### Initial Power-Up



If the Cold Module has been moved recently, allow the unit to stand on a level surface for 8 hours before switching on.



Whenever the Cold Module is switched 'Off', it must not be switched back 'On' again for at least 5 minutes in order to allow the refrigeration system to stabilise.

#### Note

*This procedure assumes that the HistoStar is set up to run with the Cold Module attached and set for 'Timer' control.*

*HistoStar can melt 2kg of Histoplast PE wax pellets from solid in approximately 7 hours, so sufficient time between initial switching on and required time of use should be allowed.*

To switch HistoStar 'ON' for the first time:

- Ensure all power switches are in the 'OFF' position and that all the HistoStar modules are connected to a suitably rated power supply.
- Ensure the cold plate timer connector on the Embedding Module is connected to the matching connector on the Cold Module.
- Ensure there is wax in the wax tank - either molten or in pellet form.



**Damage to the unit can occur if HistoStar is run for extended periods without wax in the wax tank.**

- Switch the timer control switch to the 'TIMER' position.
- Switch the power switch on the Cold Module to the 'ON' position.
- Switch the power switch on the Embedding Module to the 'ON' position - the touchscreen should power up.
- Configure the instrument settings as required. The minimum set up requirements are:
  - Time and Date.
  - Timer Settings
  - Temperature Set Points

#### Note

*It is also advisable to ensure that all other set up options are as required at this point - see System Settings.*

## Exit Sleep Mode

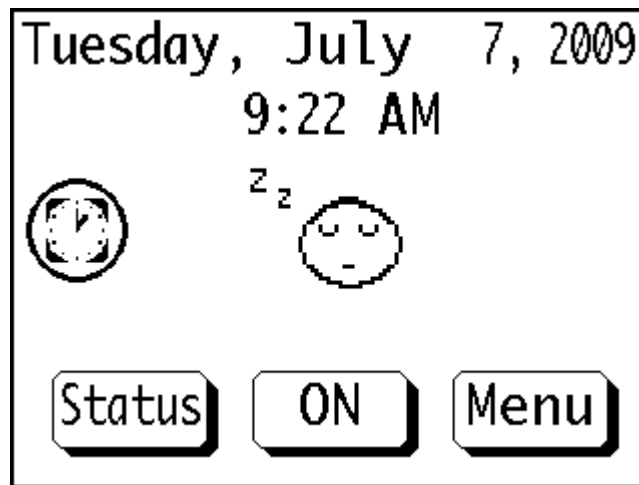
If HistoStar is not set for timer operation and has not been used for an extended period of time, it will switch itself into a powered down state called 'Sleep Mode'.

### Note

*If HistoStar is set for timer operation, there will be no need to exit Sleep Mode before use, as the timer program will ensure that it is ready for use by the set time.*

This powered down state ensures that the essential heated areas of the instrument are maintained at their set temperatures, whilst switching off non-essential systems to reduce energy consumption.

When HistoStar is in Sleep Mode the following screen will be displayed on the touchscreen display.



To exit Sleep Mode touch the 'ON' button at the bottom of the screen.

### Note

*If HistoStar has been in Sleep Mode for an extended period of time, it may be necessary to wait a while whilst the Cold Module achieves its operating temperature.*

## Cold Module Stand-Alone Power-Up



**If the Cold Module has been moved recently, allow the unit to stand on a level surface for 8 hours before switching on.**

### Note

*This procedure assumes that the HistoStar Cold Module is being used as a stand-alone instrument.*

To power-up the Cold Module for stand-alone use:

- Switch the power switch to the 'ON' position.
- Switch the timer control switch to the 'ON' position.
- Ensure the compressor can be heard running.



**Ensure the cold plate has reached its operating temperature before use.**

## Operating Method

### Note

*The embedding procedure outlined below is a general method only. Different commercial moulds and cassettes may require additional or different steps which are usually specified by the supplier. Ensure that any additional steps are incorporated into this procedure and that common sense is used in all cases.*

- Turn on HistoStar and allow the temperatures of both modules to stabilise - see Switching On HistoStar.
- Place the processed tissue cassettes in the tissue storage tank.

### Note

*Ensure that melted wax covers all of the cassettes.*

- Remove a cassette from the tissue storage tank and remove the lid - the lid can be stored in the cassette lid storage dish.

### Note

*When storing cassettes in the tissue storage tank, it is recommended that they be kept in an organizer basket.*

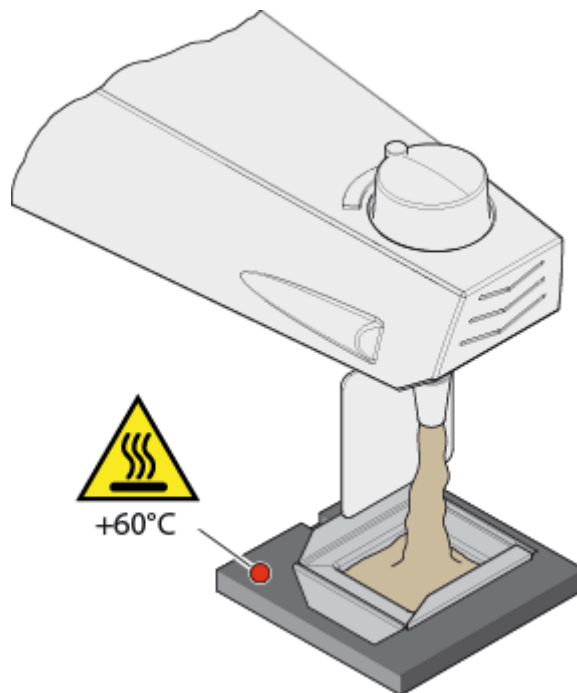
- Place the cassette on one of the hot areas in front of the tissue storage tank.
- Select a suitable clean base mould from the storage compartment and place it on the hot spot below the wax dispenser.
- Push the dispense lever backwards to fill the base mould to a level suitable for tissue orientation.



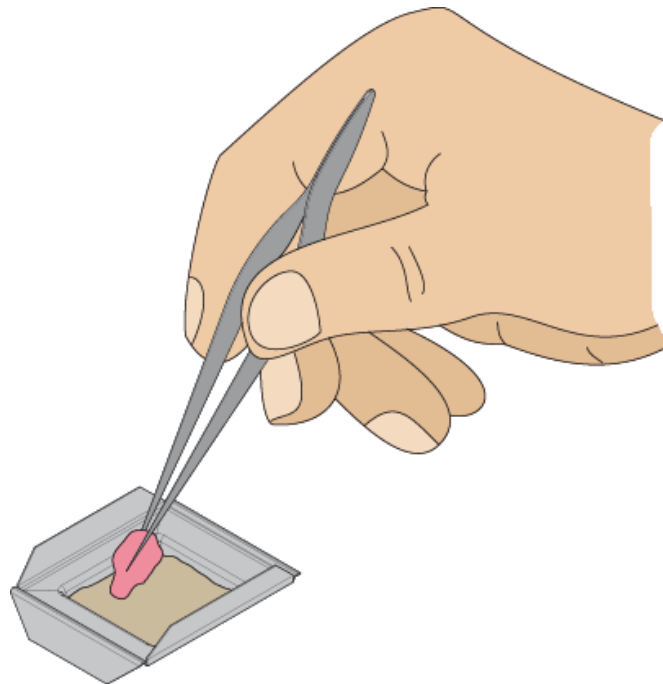
**Do not allow a skin to form on the surface of the wax inside the base mould. This can cause the wax to separate during microtomy.**

### Note

*Wax can also be dispensed using the footswitch.*



- Use forceps to remove the specimen from the cassette and position it as required within the base mould.



### Notes

*Take care when handling specimens to ensure they are not dropped onto the work areas.*

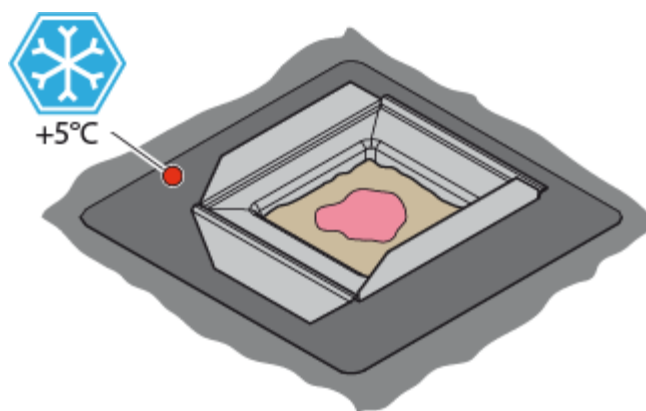
*Dropping specimens may result in cross-contamination of tissue. If tissue debris is transferred to the work surfaces, ensure it is cleaned off before proceeding.*

*If recovering a dropped specimen from the work area or drainage route, take care to ensure the specimen is not damaged.*

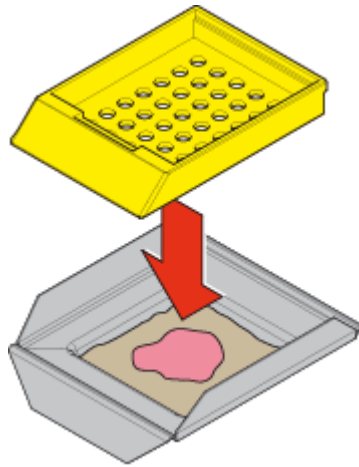


**Ensure that the tips of forceps are kept clean to avoid cross-contamination of samples.**

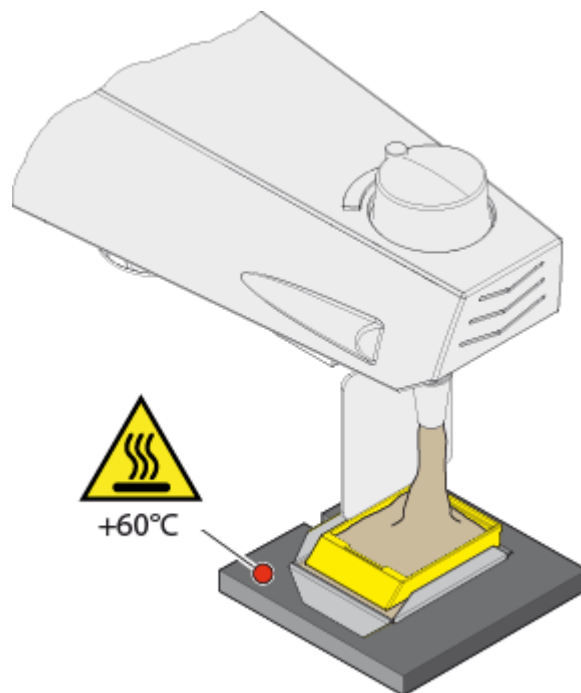
- Move the base mould onto the cold spot and wait until the wax become translucent.



- Move the base mould back onto the hot spot and place the cassette onto the base mould.



- Fill the cassette with wax.

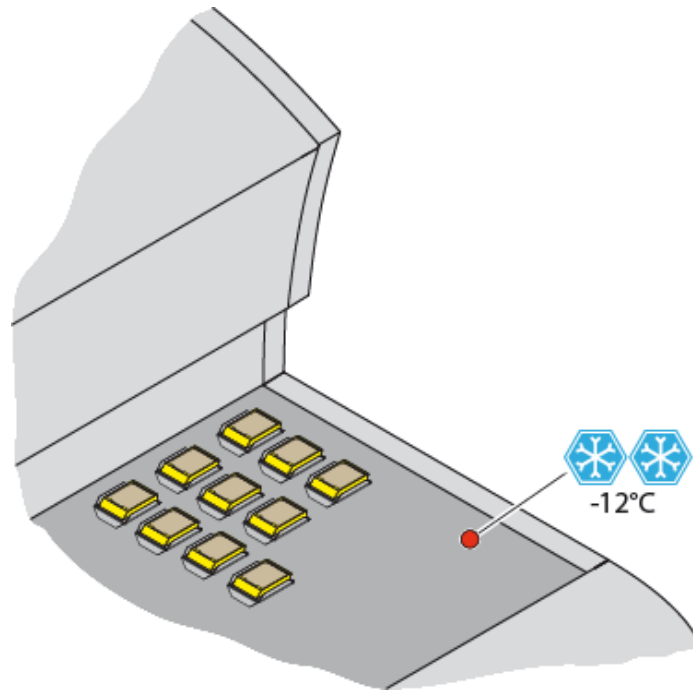


**Note**

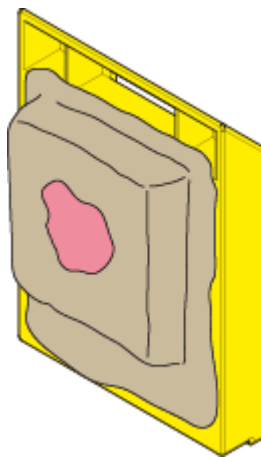
*Use the wax flow control knob to adjust the wax flow rate to a suitable setting.*

*Incorrect flow settings can cause voids to form in the wax and / or difficulties when orienting specimens.*

- Transfer the base mould and cassette onto the cold plate for rapid chilling.



- Once fully cooled and set, the cassette can be removed from the base mould ready for sectioning.



### Notes

*A frost build-up on the cold plate is normal. The rate of frost build-up will vary with the humidity in the laboratory.*

*Frost build-up will not normally interfere with cooling, but if excessive frost develops turn the Cold Module off for a short period until defrosting occurs.*

*Remove any water from the cold plate surface using a dry cloth.*

*An hour on the cold plate should be more than adequate to ensure that the wax is fully set. Prolonged chilling can cause minute cracks to form in the wax at the bottom of the base mould.*

## Using the Para Trimmer

The Para Trimmer surface on the Embedding Module can be used to remove excess wax from an embedded cassette.

To clean wax from an embedded cassette:

- Ensure the hot spot is at its preset operating temperature - the Para Trimmer temperature is determined by the hot spot settings.
- Hold an embedded cassette between thumb and forefinger, and place one of the edges against the Para Trimmer surface.
- As the wax begins to melt, drag the edge of the cassette across the serrated face of the Para Trimmer to scrape off the excess wax.



**The surface of the Para Trimmer is hot and care should be taken to avoid skin contact during use.**



**The Para Trimmer edges are sharp. Incorrect use can cause injury and / or specimen damage.**

- Repeat the above procedure for all edges until the cassette is clean.

### Notes

*The Para Trimmer is safe for cleaning the printed surface of a cassette - print will not be removed during correct use.*

*The back end of some cassettes have a notch to allow a lid to lock into; this can be cleaned by running the notched edge along the length of one of the serrations.*

*The Para Trimmer can be cleaned during operation by wiping the surface with a soft, absorbent towel.*



## Switching Off HistoStar

### Enter Sleep Mode

To switch HistoStar into its power saving Sleep Mode touch the 'Sleep' button at the bottom of the Main screen.

#### Note

*If the Cold Module is set to timer control, entering Sleep Mode will turn it off. The cold spot and hot spots on the embedding module will also be switched off. This will not turn off the wax tank, the tissue storage tank or the base mould storage area.*

### Switching Off HistoStar Completely

To switch HistoStar 'OFF' completely:

- Remove any tissue samples from the tissue storage tank.
- Switch the power switch on the back of each module to the 'OFF' position.



## Chapter 3 - Setup

### Unpacking HistoStar



Check all components for damage prior to use. Report any missing or damaged components to your Thermo Fisher Scientific representative.

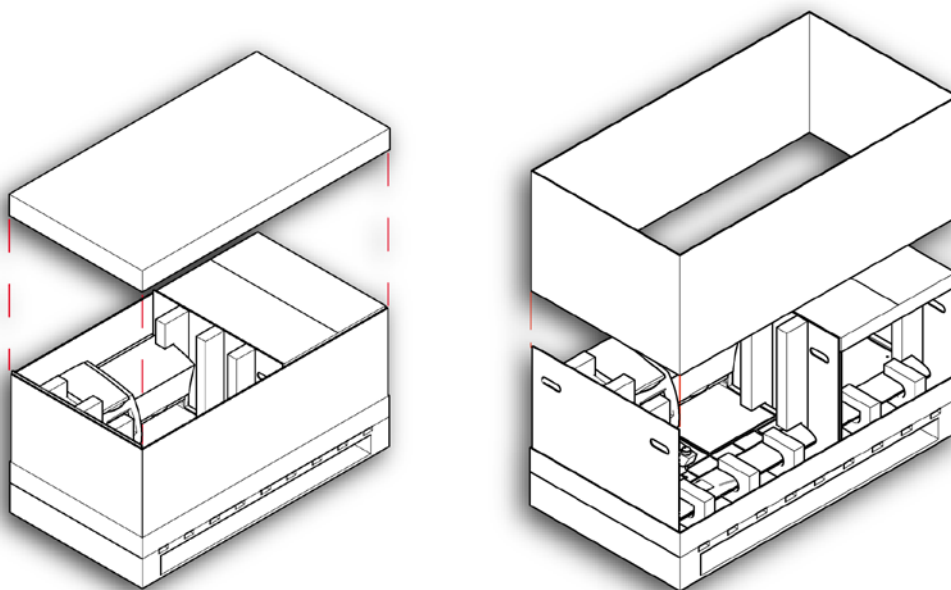
#### Note

*If the Cold Module has been purchased as a stand-alone unit, the outer packaging will differ from that shown; however, the sections which refer to the specific unpacking of the Cold Module will still apply.*

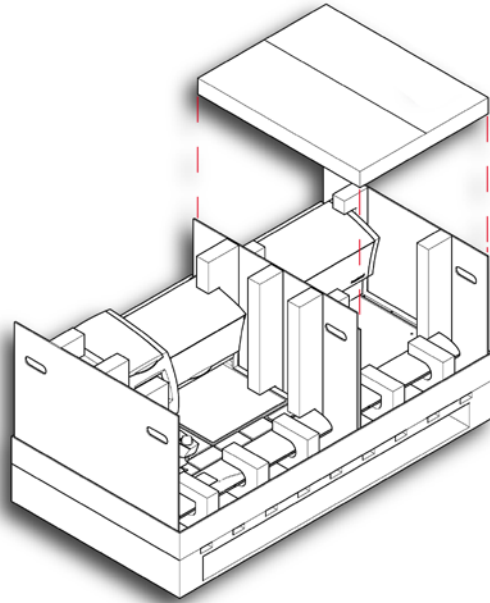
#### Unpacking the Modules

To unpack the HistoStar modules:

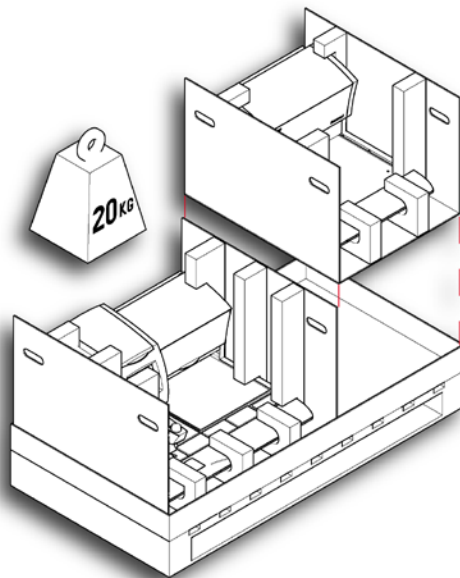
- Remove the lid and the outer sleeve and shown.



- Lift off the accessories box and set aside for unpacking later.



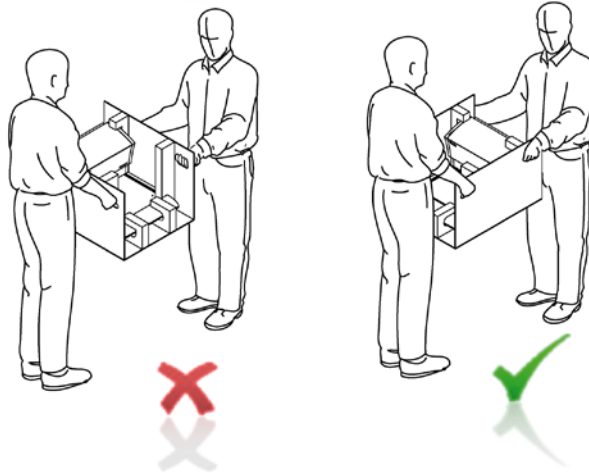
- Lift out the cold module using the handles in the cardboard packing.



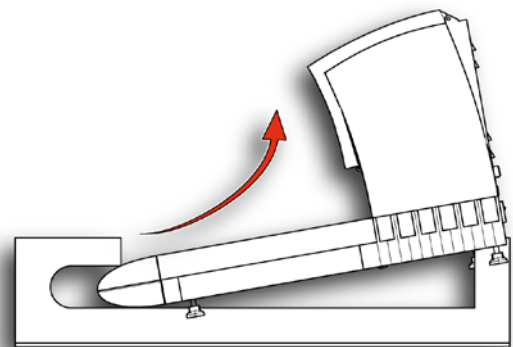
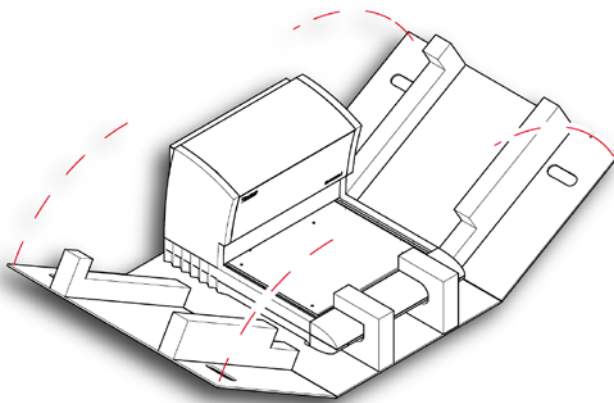
The cold module weighs approximately 20kg, with uneven weight distribution - seek help when lifting if necessary.



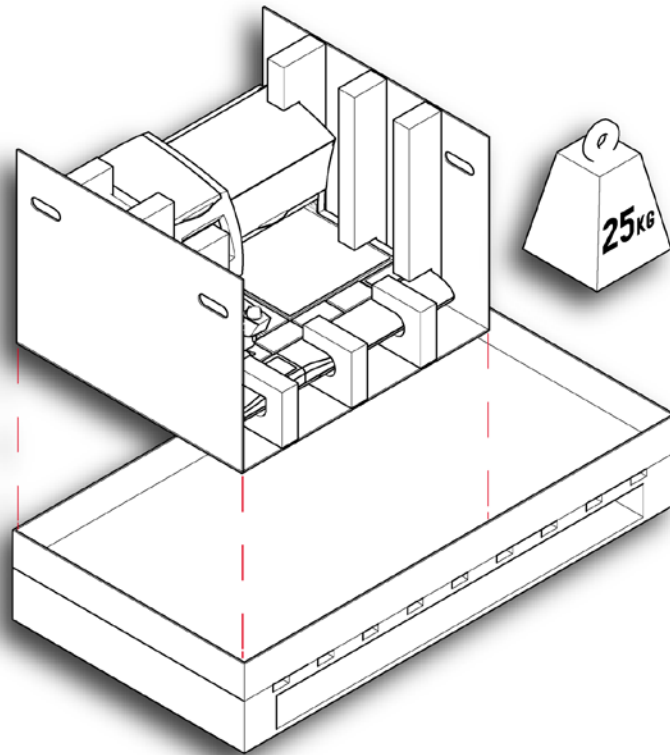
Ensure that the unit is carried in the manner shown below - failure to do so may result in personal injury and / or damage to the unit.



- Fold down the side panels of the packing, and manoeuvre the cold module out of the foam pieces as shown.



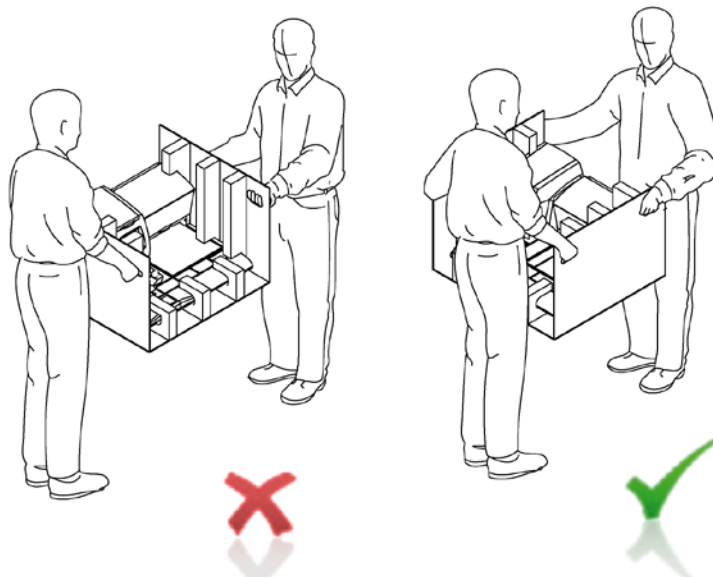
- Lift out the embedding module using the handles in the cardboard packing.



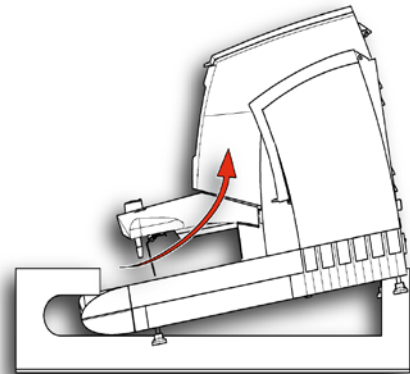
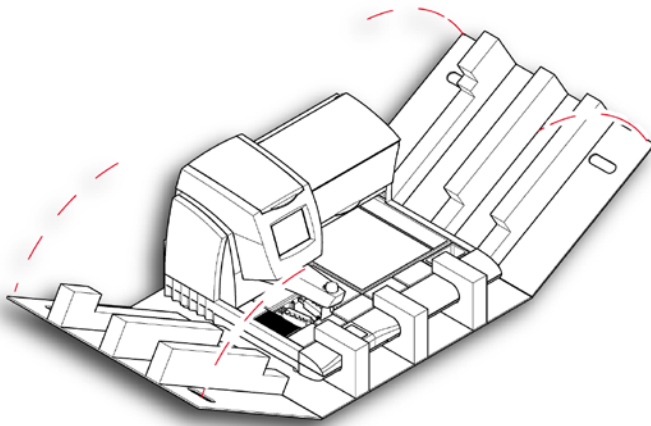
The embedding module weighs approximately 25kg - seek help when lifting if necessary.



Ensure that the unit is carried in the manner shown below - failure to do so may result in personal injury and / or damage to the unit.



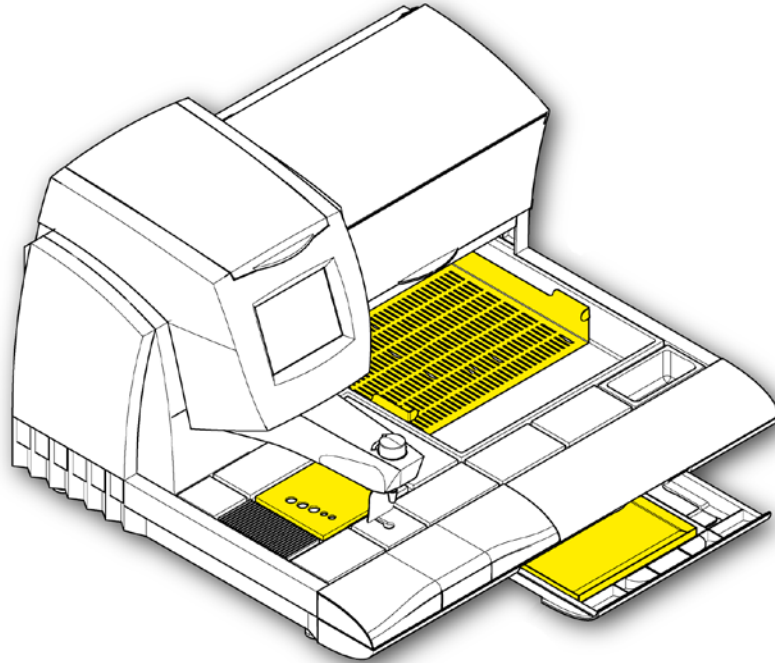
- Fold down the side panels of the packing, and manoeuvre the embedding module out of the foam pieces as shown.



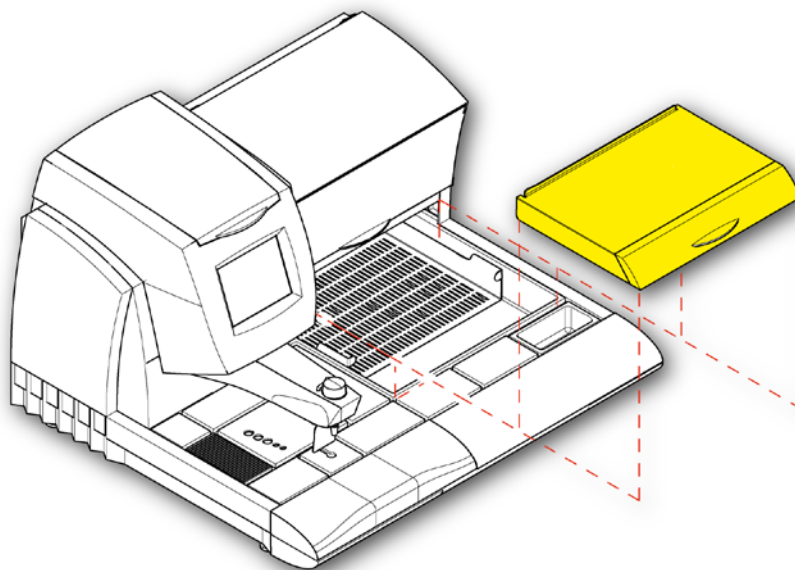
### Assembling HistoStar

To assemble the various components:

- Place the Tissue Storage Tray, Forceps Block Cover and Waste Tray in the locations shown.

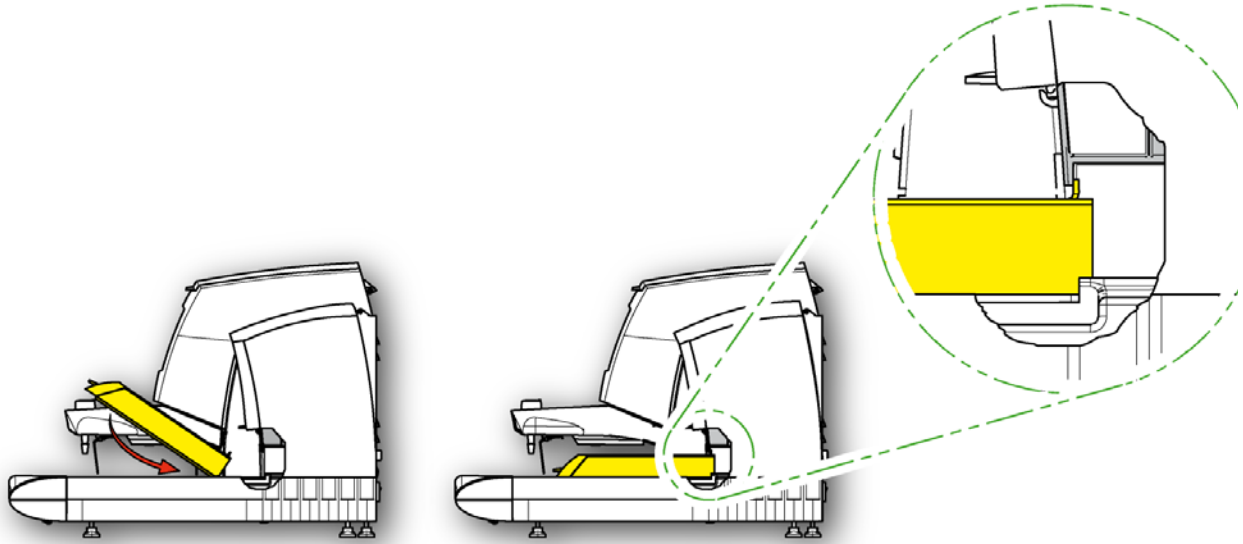


- Place the Tissue Storage Cover over the Tissue Storage Tank as shown.





- Tilt the cover backwards and slide the raised edge at the back underneath the bottom edge of the Base Mould Storage Compartment. This allows the raised edge to act as a drawer-stop, preventing the cover from being accidentally pulled too far forward.

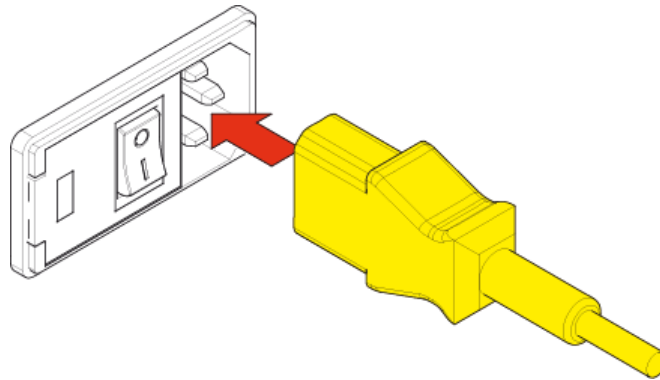


## Connections

### Connection to Mains Supply

To connect HistoStar to the Mains Supply:

- Ensure that each module is positioned within easy reach of a suitably rated Mains Power Supply - see System Specification.
- Insert the end of the power lead into the power inlet connector on each module.

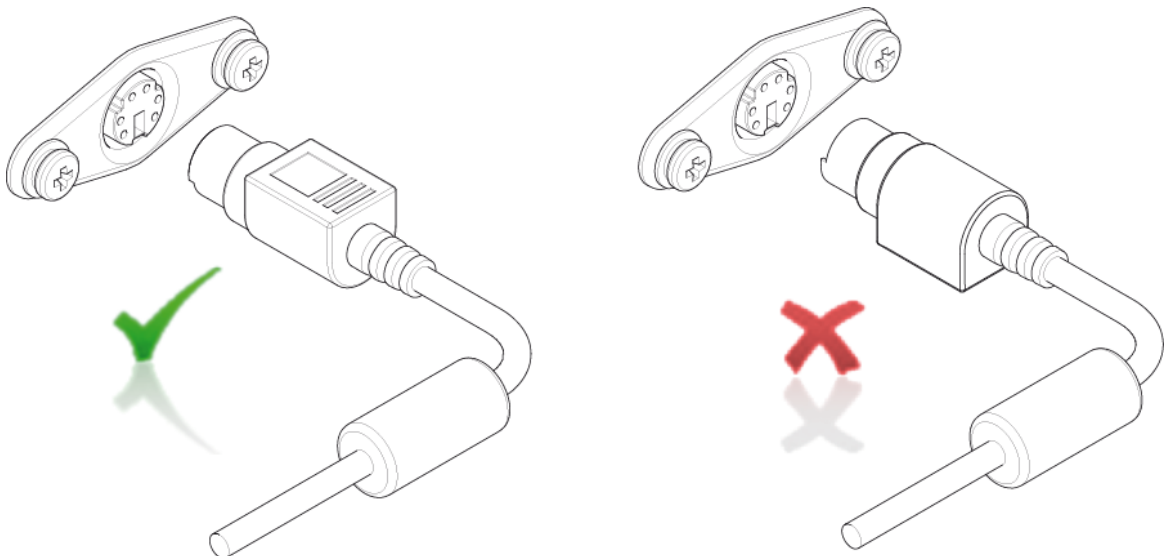


- Connect the loose end of each lead to the Mains Supply.
- Switch the Mains Supply 'ON'.

### Timer Control Connection

To connect the Cold Module to the Embedding Module for Timer control:

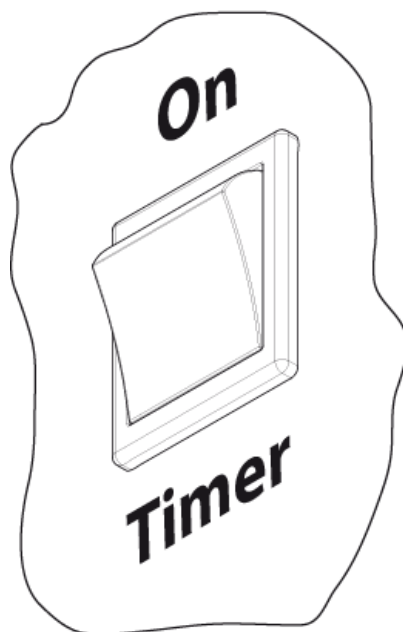
- Insert one end of the timer control lead into the cold plate timer connector on the Cold Module.





**Ensure the timer control lead is inserted in the correct orientation as shown.**

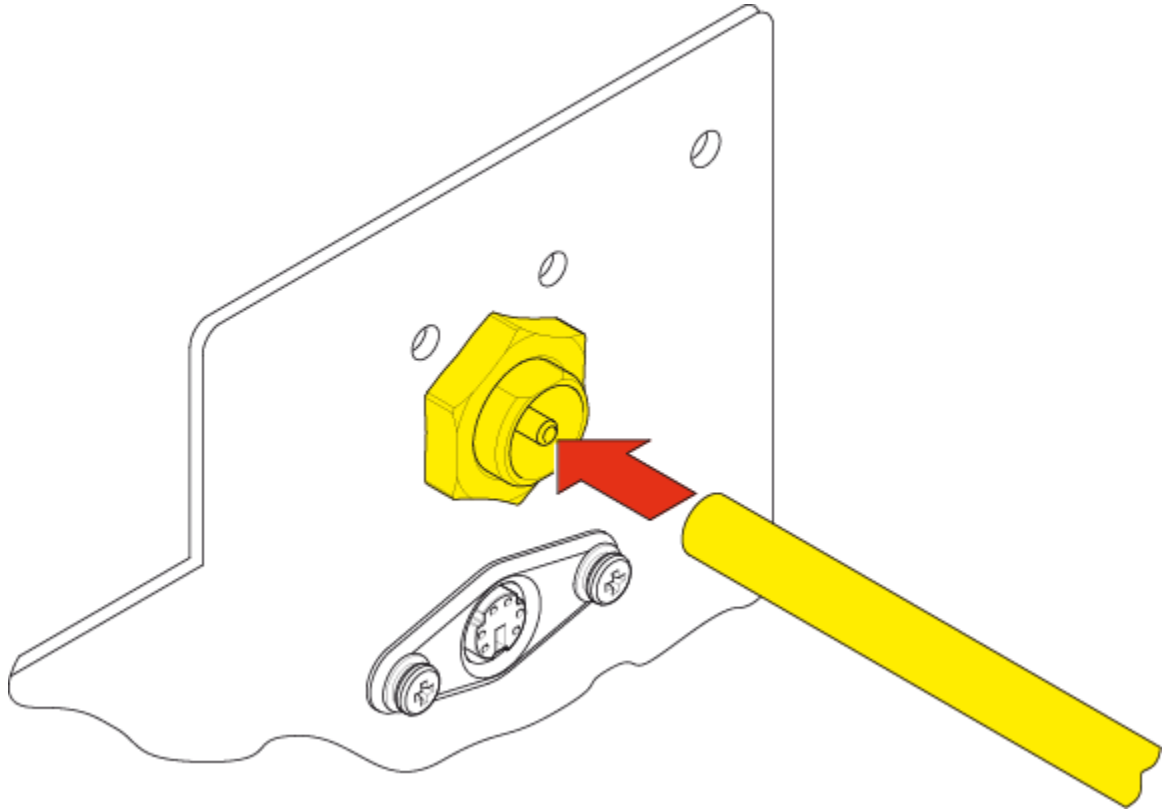
- Connect the loose end of the timer control lead into the cold plate timer connector on the Embedding Module.
- Switch the timer control switch to the 'TIMER' position.



### Footswitch Connection

To connect the optional footswitch:

- Insert the open end of the footswitch tubing into the footswitch connector port on the Embedding Module.



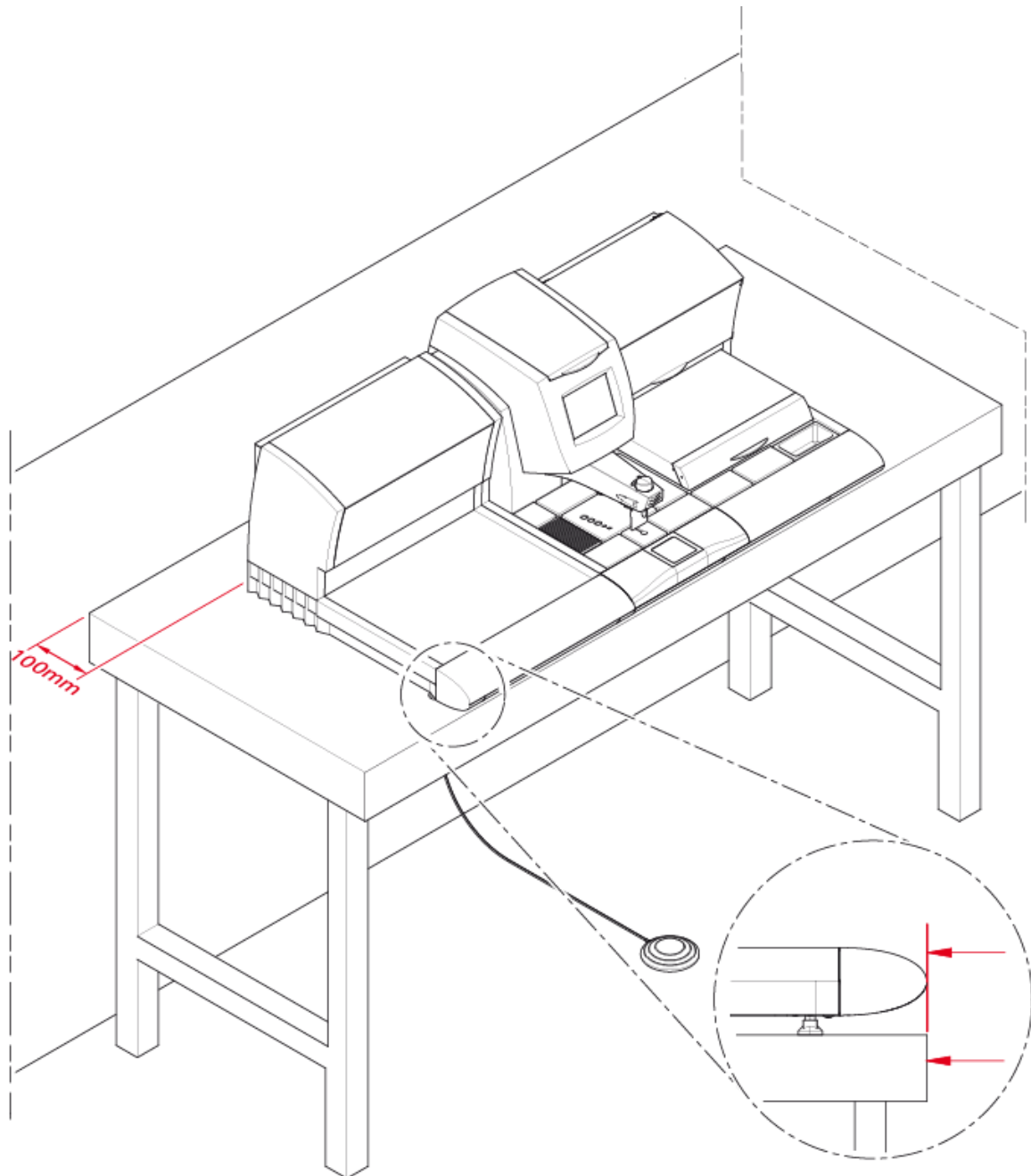
**Ensure the tubing is fully inserted otherwise the footswitch may not operate correctly.**

- Route the footswitch bellows under or behind the unit, and place on the floor in front of the dispense station.

## Setup and Location

### Locating HistoStar

When deciding where to locate HistoStar the following requirements should be taken into consideration:



- Each HistoStar module should be located with at least 100mm (4in) of clearance at the rear as shown.
- The air-vents on the back of the HistoStar modules should be unobstructed at all times.
- The air vents below the cold spot on the Embedding Module should be unobstructed at all times.
- It is advisable to ensure that there is also at least 75mm (3in) of clearance at the sides of the HistoStar .

**Note**

*There is no need to leave a gap between individual modules.*

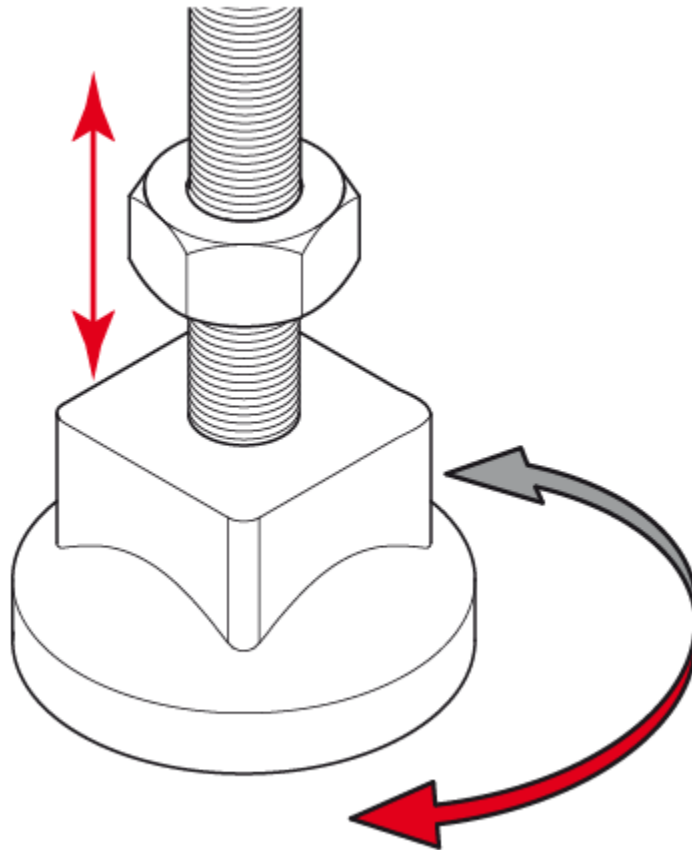
- The front edge of the HistoStar modules should be level with the front edge of the work-bench as shown.
- HistoStar must be located within easy reach of a suitably rated power supply - see System Specification.
- The work-bench must be capable of safely supporting all the HistoStar modules, including the weight of the wax and accessories - see System Specification.
- The work-bench must be level and made of non-flammable material.
- Do not position the HistoStar directly under air-conditioning or heating vents, or near to an open window.
- Do not position the HistoStar in an area where it is likely that the operator could be bumped or knocked during embedding.
- Keep out of direct sunlight.

**Levelling**

To ensure proper wax drainage during use, the HistoStar must be levelled correctly.

To level the HistoStar :

- Use a spanner to loosen the lock-nut on each of the adjustable feet.



- Turn the plastic bottom of the foot either clockwise or anti-clockwise to raise or lower the corners of the module.
- The correct levelling should have the rear of the instrument approximately 1mm higher than the front.
- Once the instrument is levelled correctly, tighten the lock-nuts to secure the adjustable feet.

**Note**

*The levelling of the HistoStar does not need to be particularly precise and the factory setting should be suitable for most cases.*

## Setting Workflow Direction

HistoStar is designed to allow the user to determine how it is arranged, in order to suit their workflow and laboratory layout.

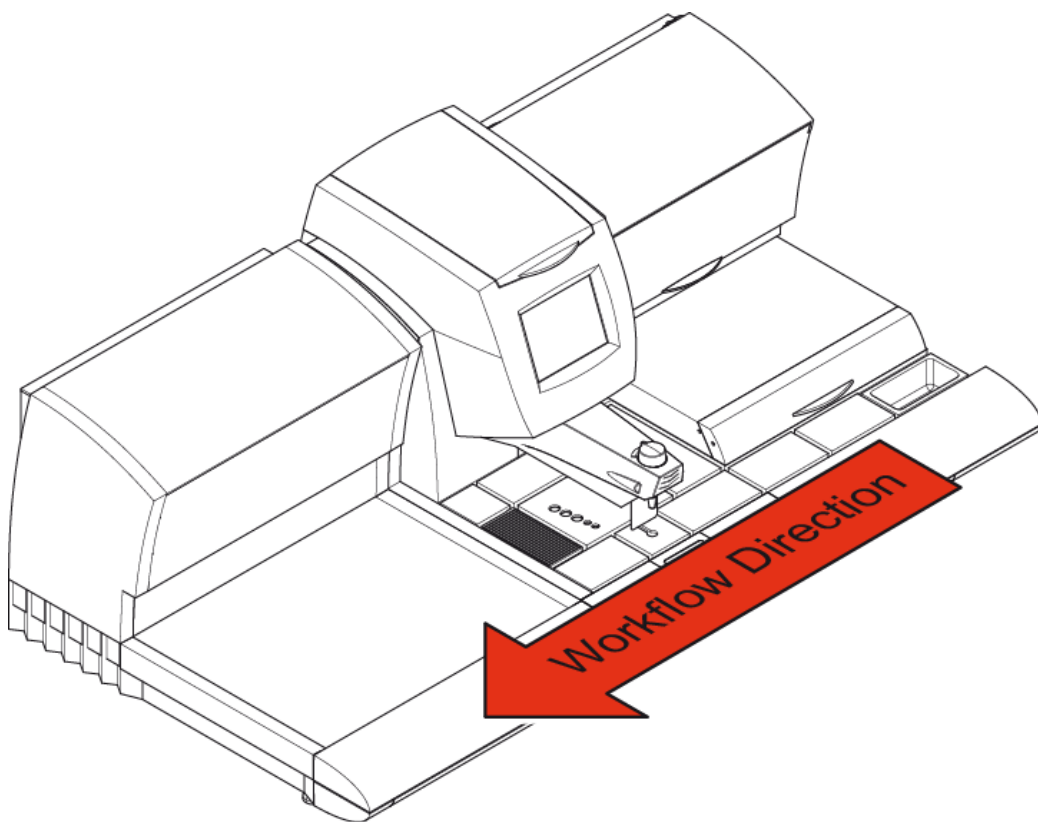
The number of modules can also be varied as required.

### Default Workflow Arrangement

The default workflow arrangement, for which HistoStar has been optimised, is from right to left as shown.

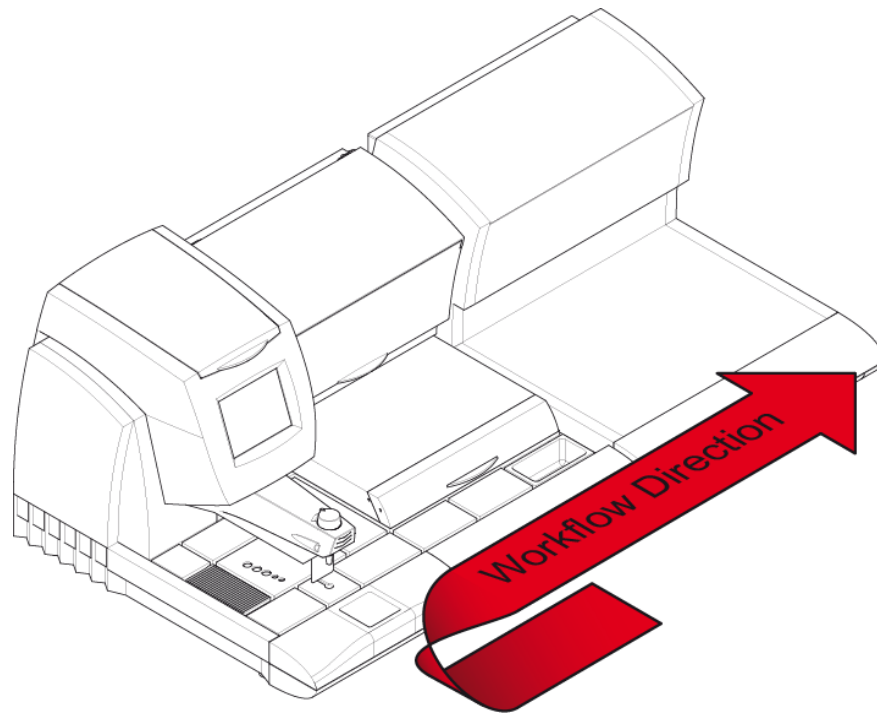
#### Note

*Examples throughout this operator guide assume this layout.*

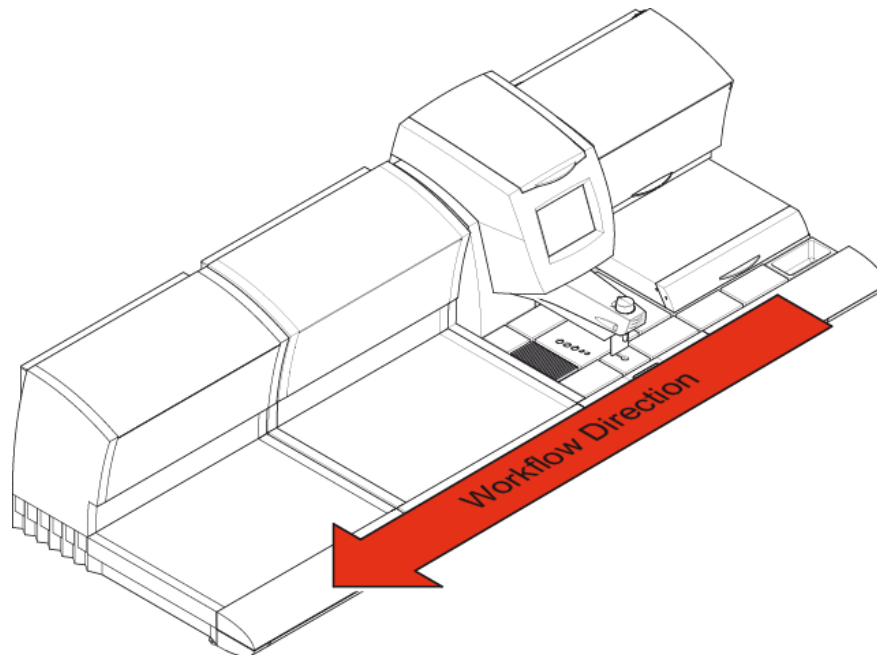




The most common alternative arrangement is shown below:



It is also possible to create unique workflows by varying the number of each type of module - see below for example.



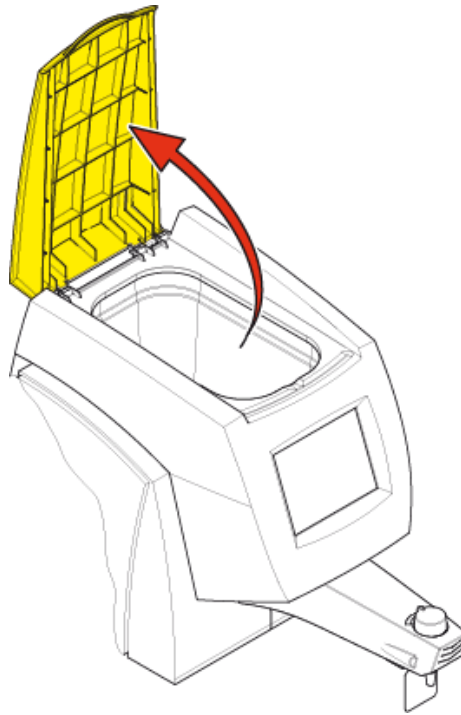
**Note**

*Only one Cold Module can be timer controlled from a single Embedding Module.*

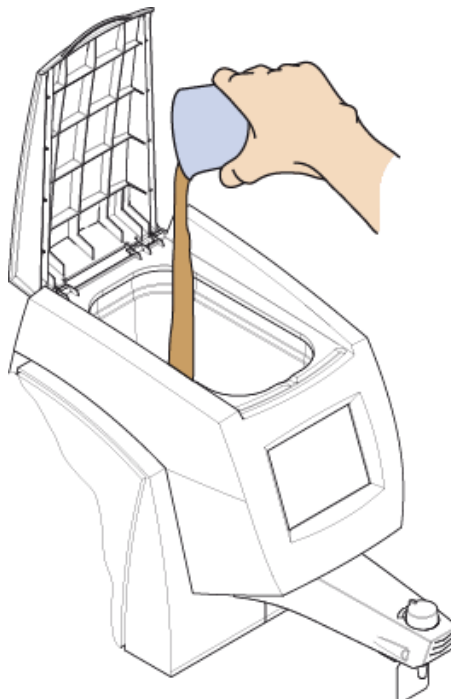
## Filling with Wax

To fill the wax tank:

- Open the wax tank cover to allow access to the wax tank.



- Use a beaker or other suitable container to pour pre-molten wax into the wax tank.



**Note**

*It is possible to fill the wax tank with wax pellets instead of pre-molten wax, however, the pellets will take a significant amount of time to melt.*

*It is recommended that wax pellets are only added directly to the wax tank when there is still about a quarter of a tank of molten wax still in the tank.*

*Wax pellets added directly to the wax tank when it is empty, can take up to 6 hours per kilogram to melt.*

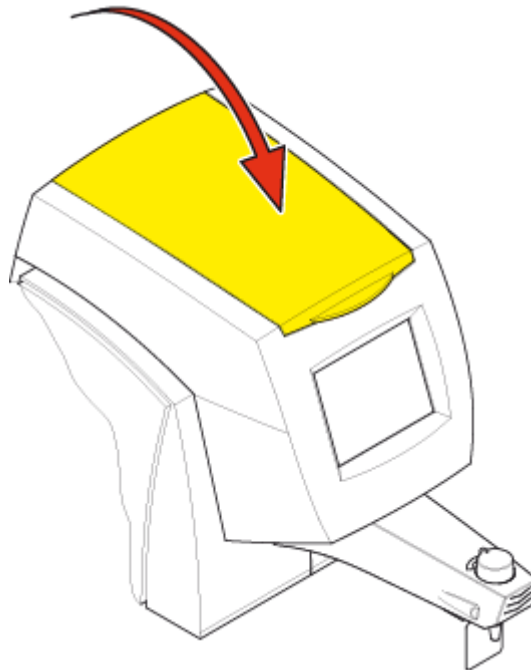


**Do not overfill - Maximum fill level is 20mm below the top of the tank.**



**Molten wax is hot and can cause severe burns.**

- Close the wax tank cover.



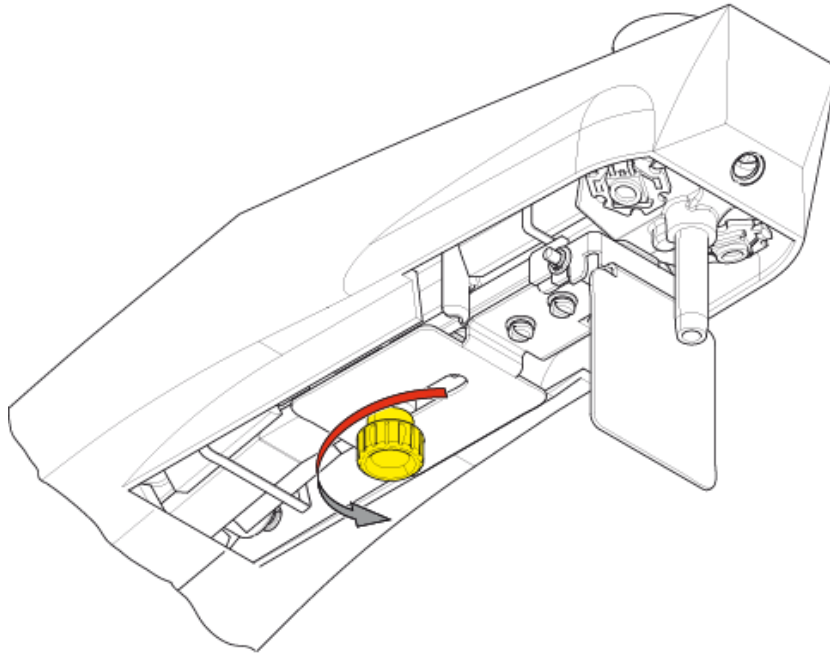
## Dispense Lever Adjustment and Wax Flow Control

When dispensing wax it may be desirable to reposition the dispense lever and / or adjust the flow rate of the wax to suit your specific working habits.

### Adjusting the Dispense Lever Position

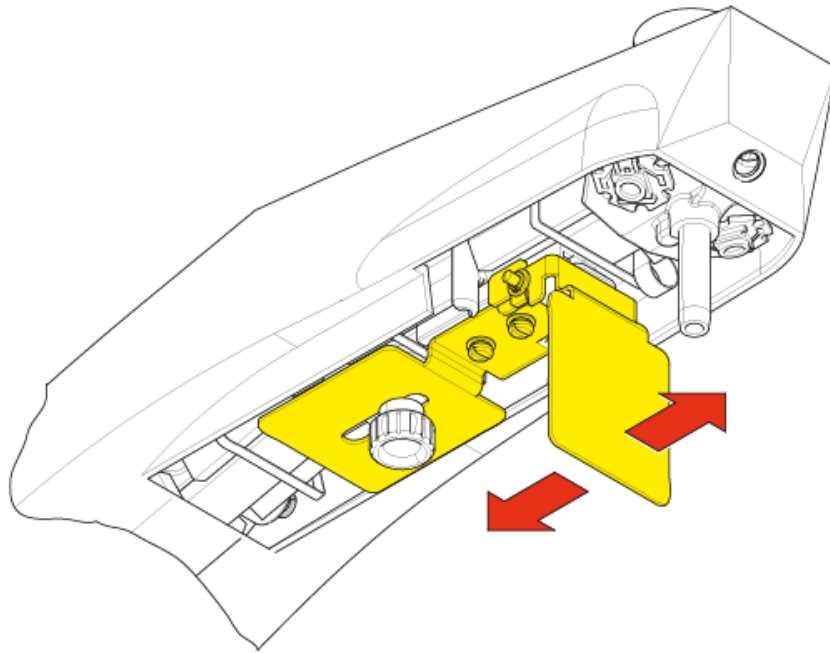
To adjust the position of the dispense lever:

- Loosen the dispense lever position adjustment knob by approximately 1 full turn as shown.



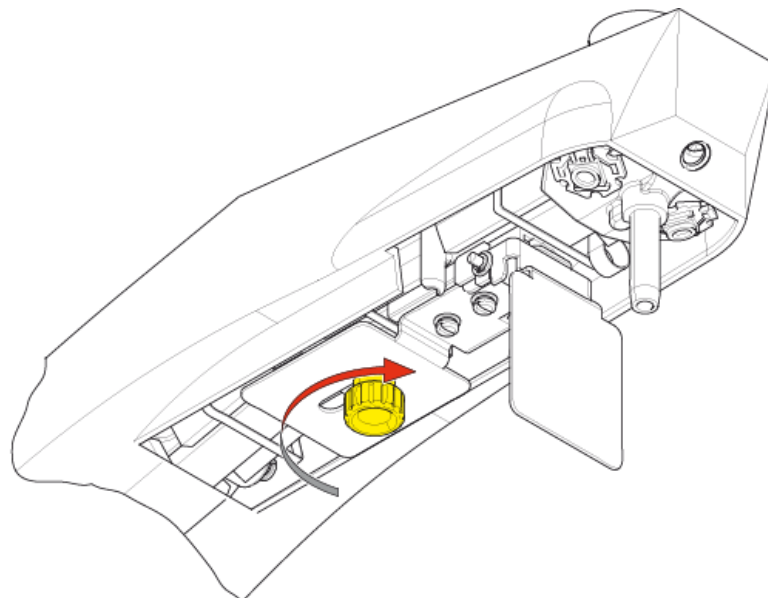
**Do not remove the dispense lever position adjustment knob.**

- Reposition the dispense lever mechanism as required..



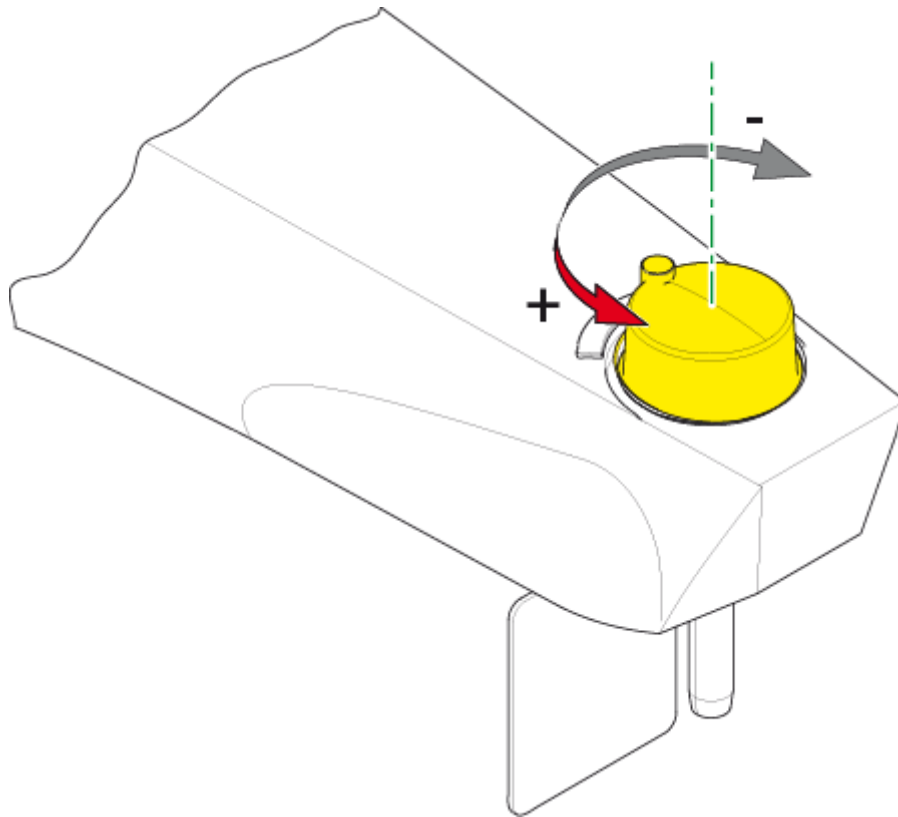
**When repositioning the dispense lever always ensure that the wax dispense flow control knob is set to the lowest possible setting, to avoid accidentally dispensing hot wax whilst moving the mechanism.**

- Tighten the dispense lever position adjustment knob to lock the dispense lever mechanism in the new position.



### Adjusting the Wax Dispense Flow rate

To adjust the wax dispense flow rate turn the wax dispense flow control knob to the required setting.



#### Notes

*Turning the adjustment knob counter-clockwise will increase the flow of wax; turning the adjustment knob clockwise will reduce the flow of wax.*

*Turning the adjustment knob fully clockwise may not cause the wax to stop flowing.*

## System Settings

There are various settings on the HistoStar which can be adjusted as necessary.

These settings are:

- Time and Date
- Temperature Units
- Temperature Set Points
- Timer Settings
- Display and Audio
- Instrument Lighting
- Forceps Block Power Settings
- Language Selection

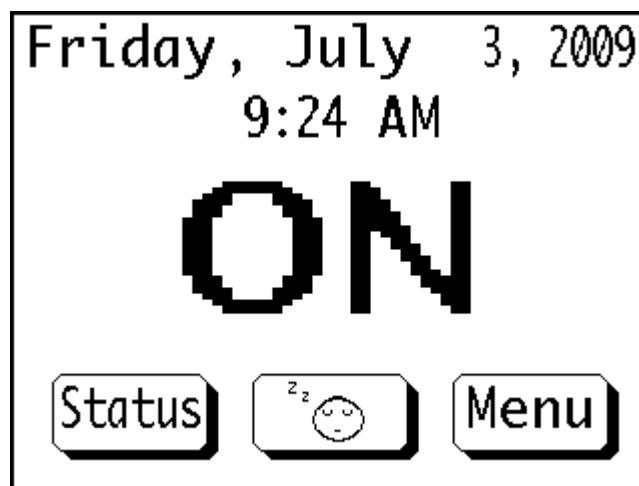
These settings can all be accessed from the Main Menu screen.

### Note

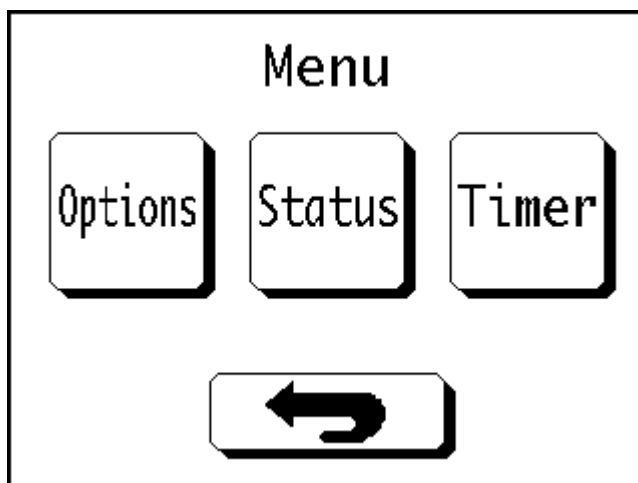
*The Temperature Set Points and Language Selection settings can be accessed via other screens too. Details are provided in the relevant sections.*

To view the Main Menu screen after switching on the HistoStar :

- Wait for the system to load and display the System Menu screen.



- Press the 'Menu' button to display the Main Menu screen.

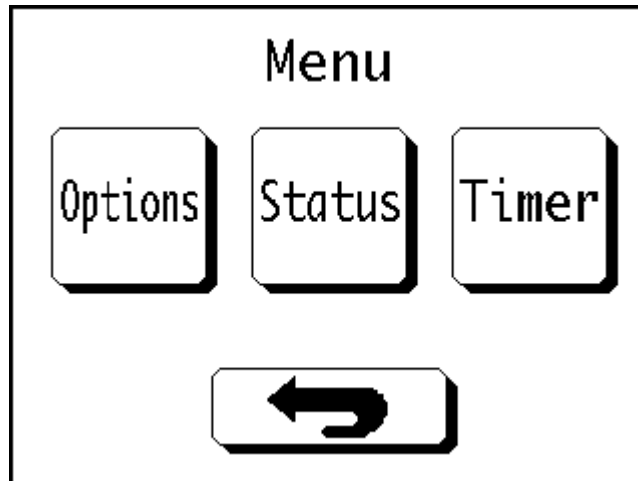




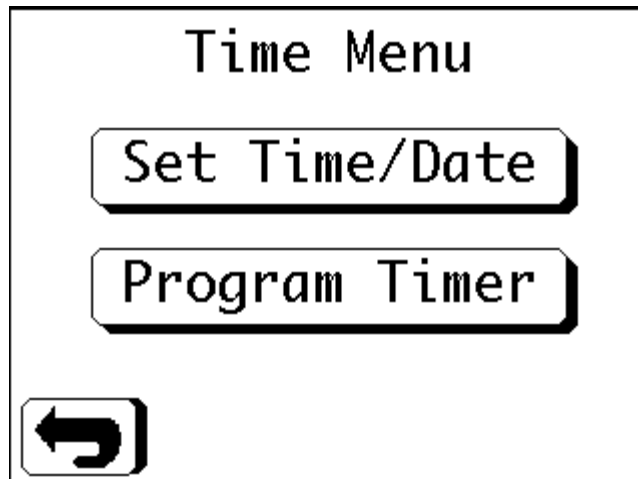
## Time and Date

To set the time and date:

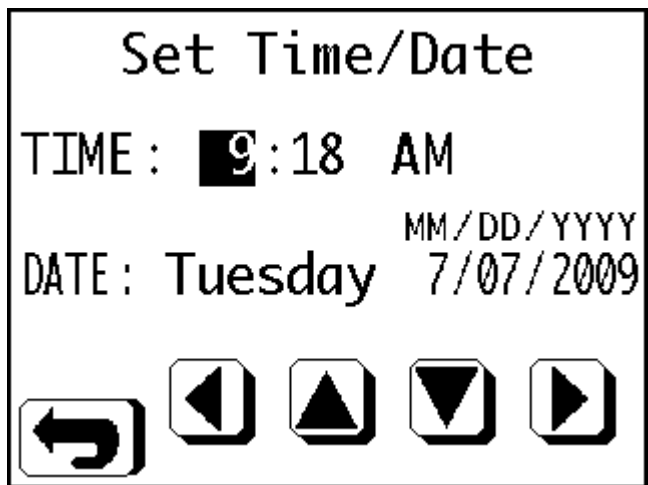
- Press the 'Timer' button on the Main Menu.



- Press the 'Set Time / Date' button on the Time Menu.



- The Set Time / Date screen will appear.



- Use the 'Left' and 'Right' buttons to highlight the value to change.
- Use the 'Up' and 'Down' buttons to increase or decrease the highlighted value.
- Press the 'Return' button to exit the screen when finished.

**Note**

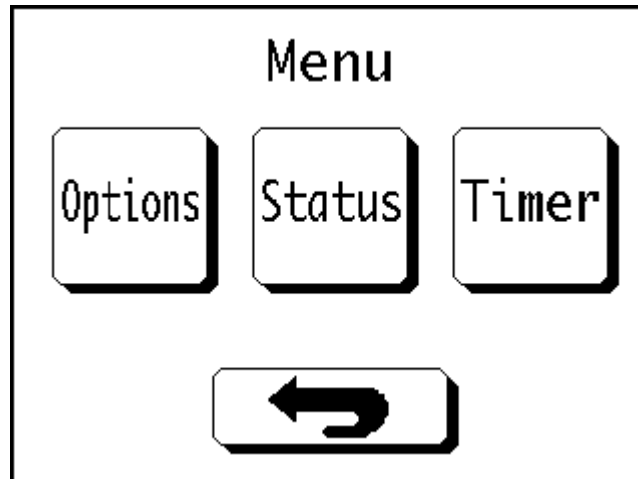
*HistoStar does not start to count the time until the 'Set Time / Date' screen has been exited.*

*HistoStar does not automatically adjust the time to allow for Daylight Saving Time.*

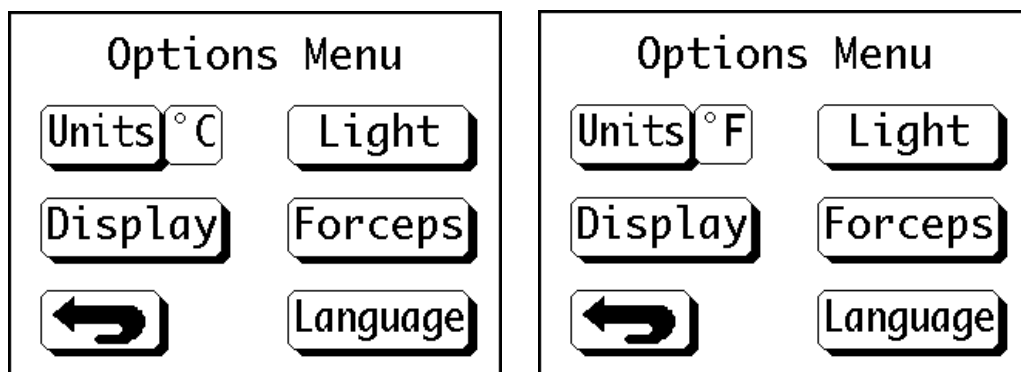
## Temperature Units

To change the units used for temperature readings between degrees Celsius ( $^{\circ}\text{C}$ ) and degrees Fahrenheit ( $^{\circ}\text{F}$ ):

- Press the 'Options' button in the Main Menu.



- Press the 'Units' button in the Options Menu - the value shown will change to the alternate unit type.



- Pressing the 'Units' button again will change back to the original units.

### Note

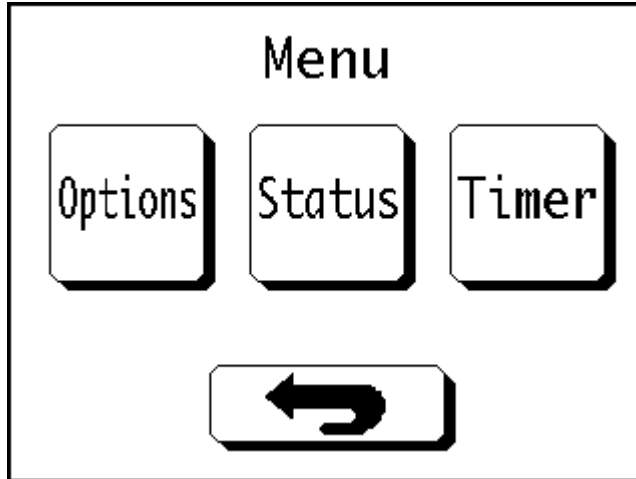
*The default unit is degrees Celsius.*

## Temperature Set Points

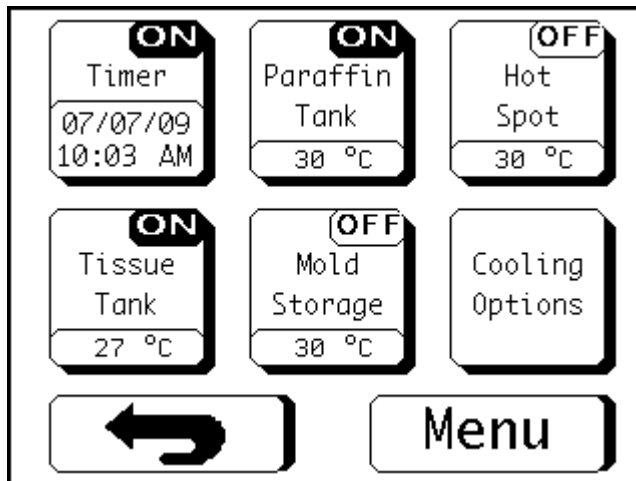
The HistoStar allows individual control of each of the hot and cold areas.

To define the temperature set points:

- Press the 'Status' button in the Main Menu.



- When the Status Menu appears, select the item to control.



### Note

*It is advisable to have the Status Menu displayed during normal operation.*

*The Status Menu allows quick access to the settings which are likely to be changed most often. It also gives a visual indication of the temperatures around the instrument and will alert the user of any faults which may occur.*

### Timer Button

The 'Timer' button allows the timer settings for the day to be activated / deactivated as required.

#### Note

*The 'Timer' button is an On / Off switch only and does not link to the Program Timer screen. To edit the timer settings see Timer Settings.*

The current date and time are displayed in the button graphic along with the current condition of the timer.

### Heated Area Buttons

The four heated area buttons are:

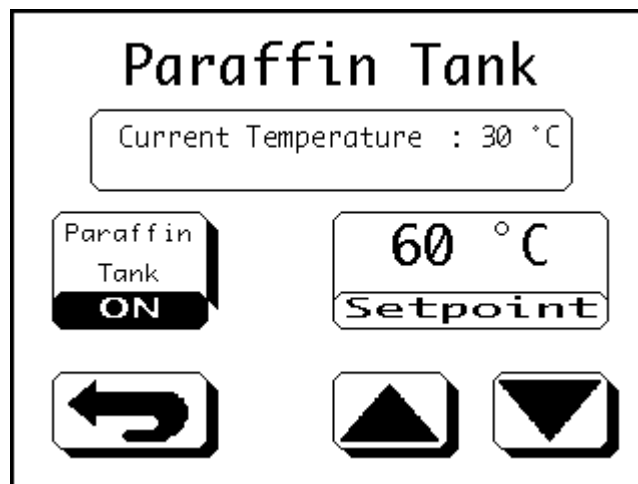
- Paraffin Tank
- Hot Spot
- Tissue Tank
- Mold Storage

Each of the buttons displays the current temperature of the heated area.

Pressing any of the four buttons listed above will display the relevant Settings screen.

#### Note

*The appearance of the screens for the heated areas will vary, although they will all have the same features, as shown below.*



To switch the heater for the selected area 'OFF':

- Press the 'Paraffin Tank' button.
- The button image will change to display 'OFF' and the area heater will be deactivated.
- Pressing the button again will turn the heater back 'ON'.

To alter the temperature setting:

- Use the 'Up' and 'Down' buttons to adjust the 'Setpoint' value displayed.
- The maximum value is 70°C (158°F), and the minimum value is 50°C (122°F).

**Note**

*All of the heated areas have the same maximum and minimum values.*

To exit the Settings screen:

- Press the 'Return' button.
- The settings will be saved and the Status Menu will appear.



Ensure all heated areas are at their set temperature before use.



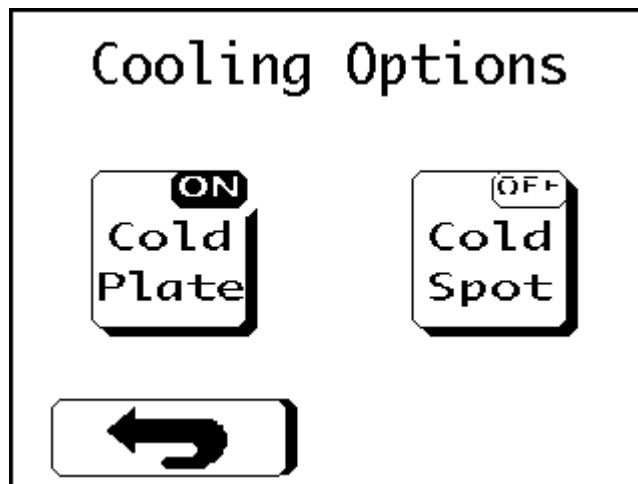
Ensure all wax is fully molten before use.



Ensure the temperature settings for all heated areas is appropriate for the type of wax being used.

**Cooling Options Button**

Pressing the 'Cooling Options' button will display the following screen:



The two buttons display the current condition of the relevant cold area.

- Pressing either of the buttons will toggle the specific cold zone between 'ON' and 'OFF'.
- Press the 'Return' button to return to the Status Menu.



Ensure all cold areas are cold to the touch before use.

## Timer Settings

### Introduction

The timer function allows the user to define specific times when the HistoStar will be used.

This allows the software to pre-heat / pre-cool the relevant sections of the instrument, so that they are ready for use at a given time.

It also turns off areas of the instrument at given times.

The timer allows individual programs to be defined for all 7 days of the week.

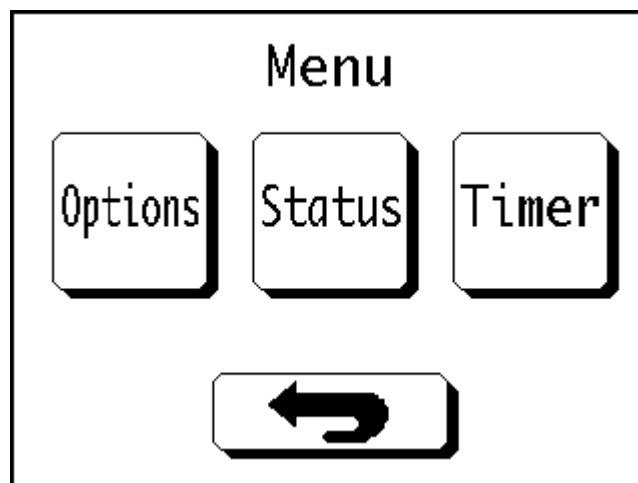
There is also the option to disable the timer function on specific days if required.

For the cold module to be controlled by the timer function, the timer control lead must be connected and the timer control switch on the cold module must be set to the 'Timer' position - see Connections.

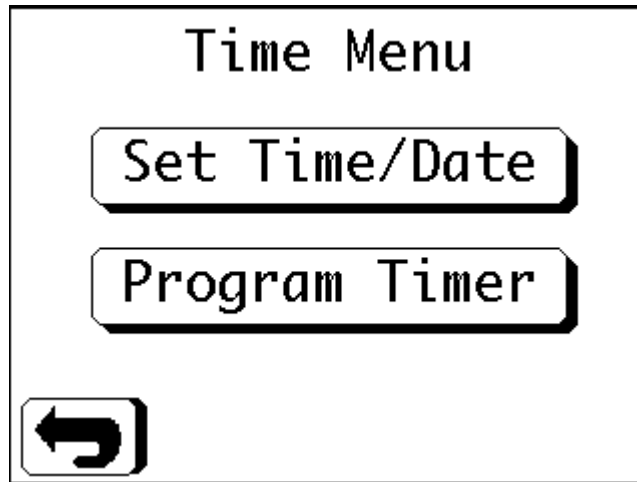
### Setting the Timer

To define the timer settings:

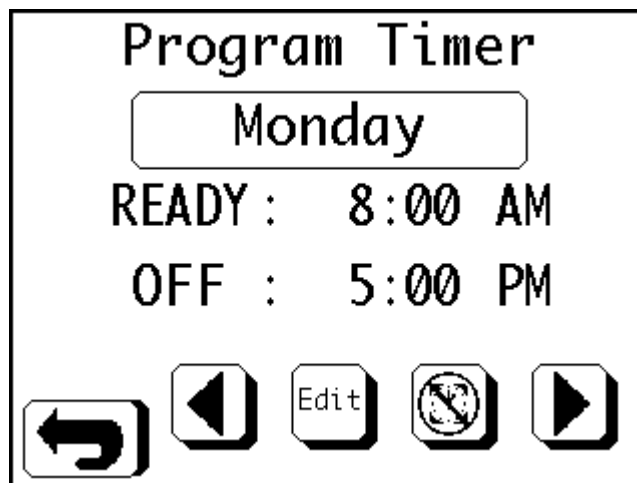
- Press the 'Timer' button in the Main Menu.



- Press the 'Program Timer' button in the Time Menu.



- The Program Timer' screen will appear.



### Disable Timer

To disable the timer function for any given day:

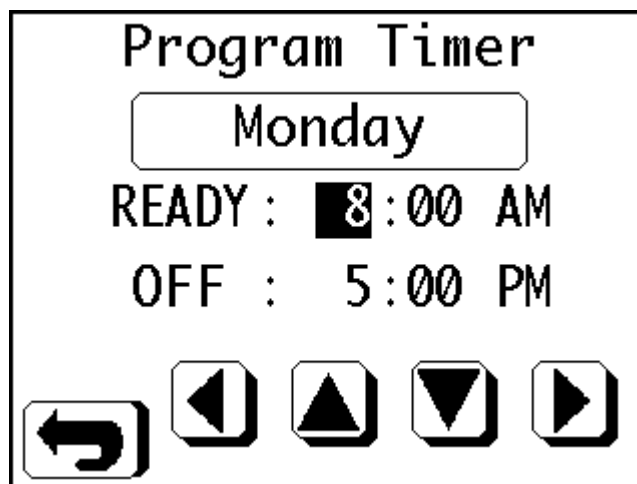
- In the Program Timer screen, use the 'Left' and 'Right' buttons to scroll through the days of the week, until the required day is displayed.
- Press the 'Timer Off' button.
- The word 'Disabled' will appear below the day.



**Edit Timer Values**

To edit the 'Ready Time' and / or 'Off Time' for any given day:

- In the Program Timer screen, use the 'Left' and 'Right' buttons to scroll through the days of the week, until the required day is displayed.
- Press the 'Edit' button.
- The screen will change as shown:



- Use the 'Left' and 'Right' buttons to highlight the value to change.
- Use the 'Up' and 'Down' buttons to increase or decrease the highlighted value.
- Press the 'Return' button to exit the screen when finished.

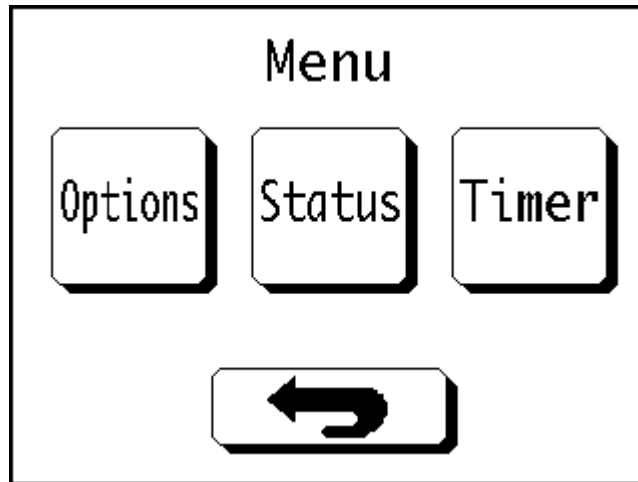
**Note**

*The minimum increment for timer setting values is 5 minutes.*

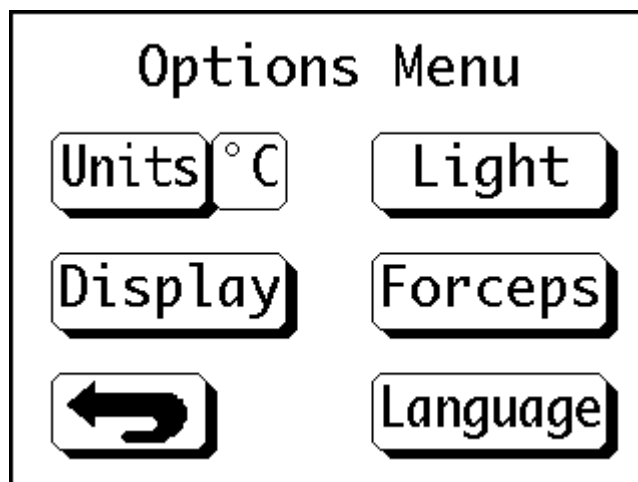
## Display and Audio

To change the display and audio settings:

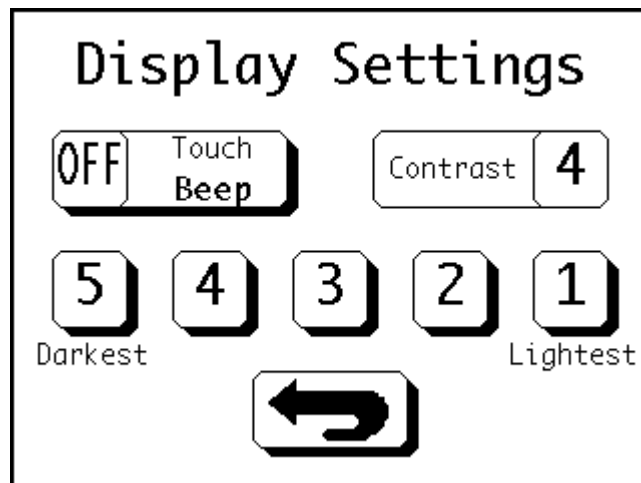
- Press the 'Options' button in the Main Menu.



- Press the 'Display' button in the Options Menu.



- The Display Settings screen will appear.



### Adjust Contrast

The screen contrast can be adjusted as follows:

- In the Display Settings screen press the required contrast value from '1' to '5'.
- '5' is the darkest setting and '1' is the lightest.
- The current setting is displayed in the top right-hand corner of the screen.

### Audio Settings

An audible tone can be set to occur every time the touchscreen is activated.

To switch the tone on or off:

- In the Display Settings screen press the 'Touch Beep' button to toggle between 'ON' and 'OFF'.

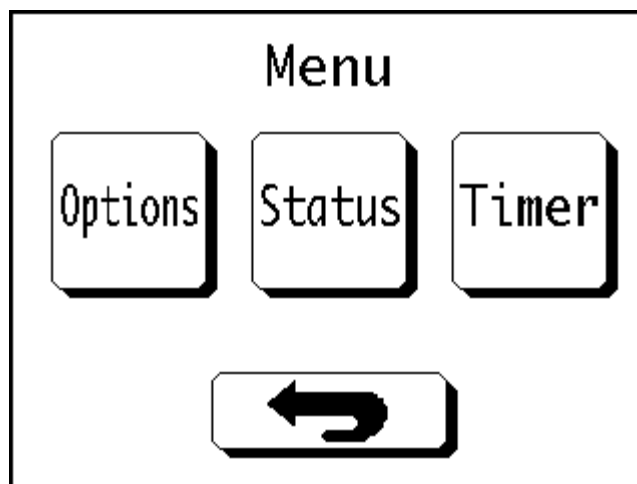
## Instrument Lighting

The work areas on HistoStar are illuminated by two sets of lights for improved user visibility during embedding. One set of lights is located at the end of the wax dispense arm and are referred to as 'Hot Spot Lights'.

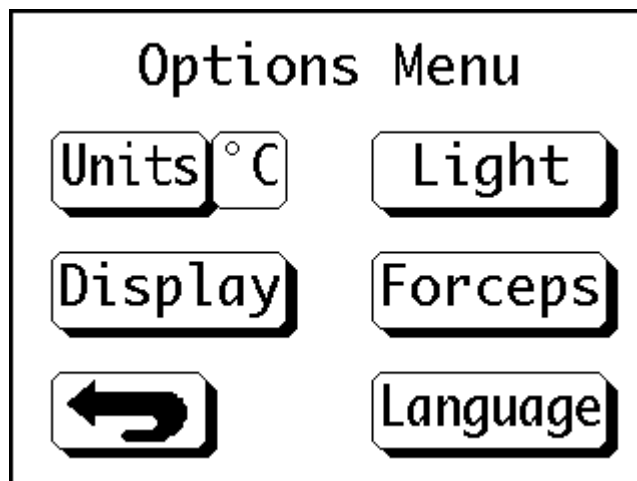
The other set of lights is located in the instrument casing below the touchscreen display. These are referred to as 'Accessory Lights'.

To access the Light Menu:

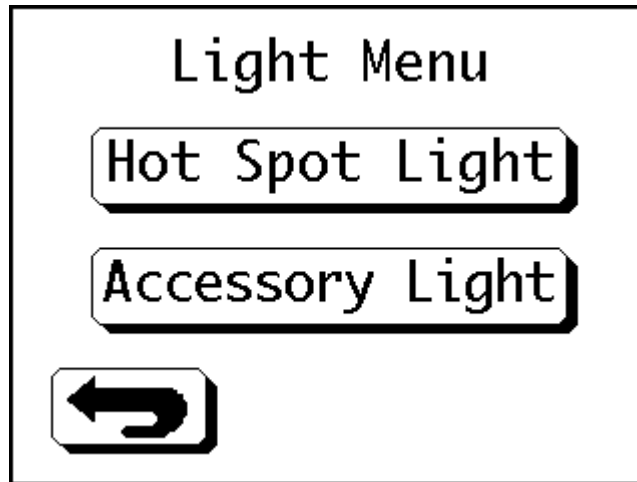
- Press the 'Options' button in the Main Menu.



- Press the 'Light' button in the Options Menu.



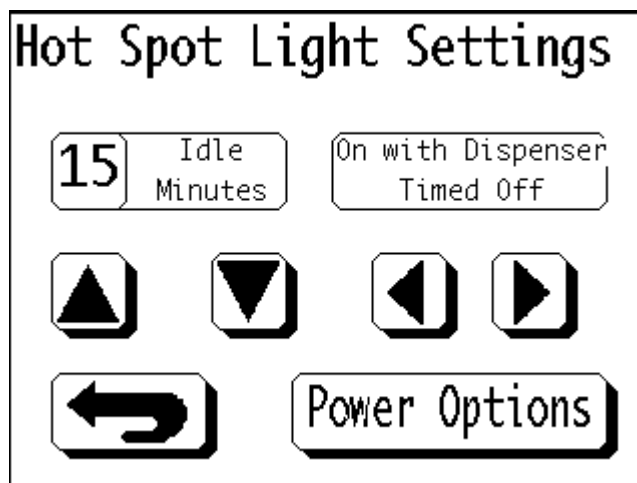
- The Light Menu screen will appear.



### Adjust Hot Spot Lights Settings

To adjust the hot spot lights settings:

- Press the 'Hot Spot Light' button to access the Hot Spot Lights Settings screen.



- Use the 'Up' and 'Down' buttons to increase or decrease the 'Idle Minutes' setting.

- Use the 'Left' and 'Right' buttons to scroll through the activation options below:

On with  
Hot Spots

This setting links the hot spot lights to the hot spots, so that they are both on / off at the same time.

On with Dispenser  
Timed Off

This setting links the hot spot lights to the dispense arm operation. The lights will switch on when the dispense lever is pushed, and will remain on for a period of time. This period of time is defined by the 'Idle Minutes' setting.

OFF

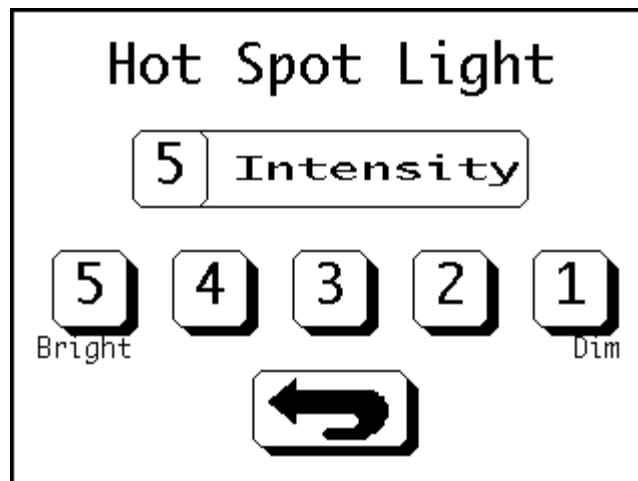
This setting disables the hot spot lights.

- Once the settings have been configured as required, press the 'Return' button to return to the previous screen.

### *Hot Spot Lights Power Settings*

To adjust the hot spot lights power settings:

- In the Hot Spot Lights Settings screen, press the 'Power Options' button to access the Hot Spot Lights Power Settings screen.

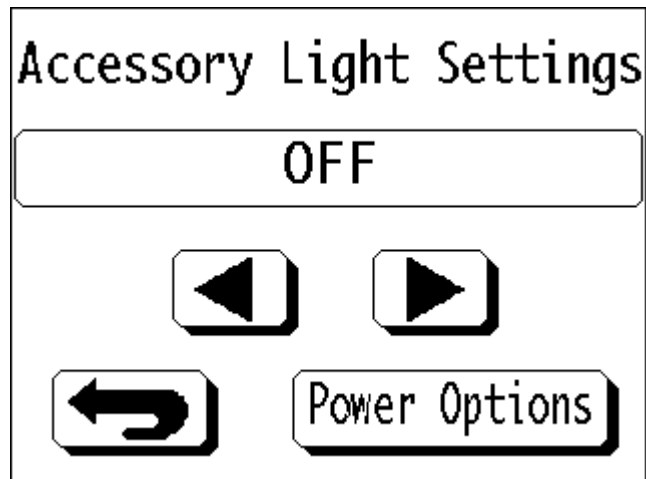


- Select a power setting between '1' and '5'; where '5' is the brightest, and '1' is the most dim.
- Press the 'Return' button to return to the previous screen.

### Adjust Accessory Lights Settings

To adjust the accessory lights settings:

- Press the 'Accessory Light' button to access the Accessory Lights Settings screen.



- Use the 'Left' and 'Right' buttons to scroll through the activation options below:

Link to Hot Spot Light

This setting links the accessory lights to the hot spot lights so that they are both on / off at the same time.

ON

This setting switches the accessory lights on permanently.

OFF

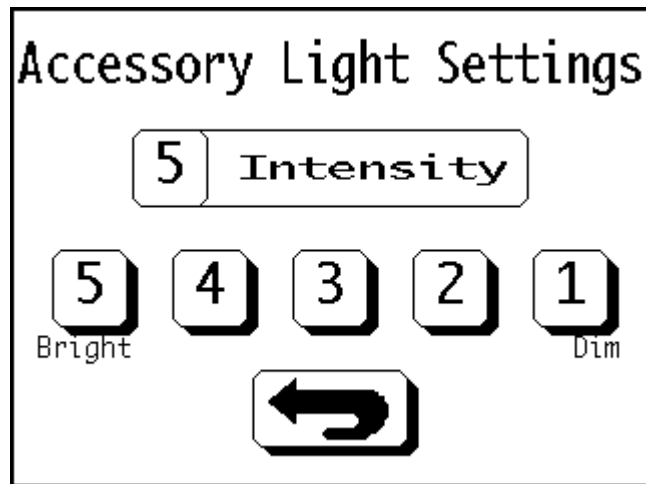
This setting disables the accessory lights.

- Once the settings have been configured as required, press the 'Return' button to return to the previous screen.

*Accessory Lights Power Settings*

To adjust the accessory lights power settings:

- In the Accessory Lights Settings screen, press the 'Power Options' button to access the Accessory Lights Power Settings screen.



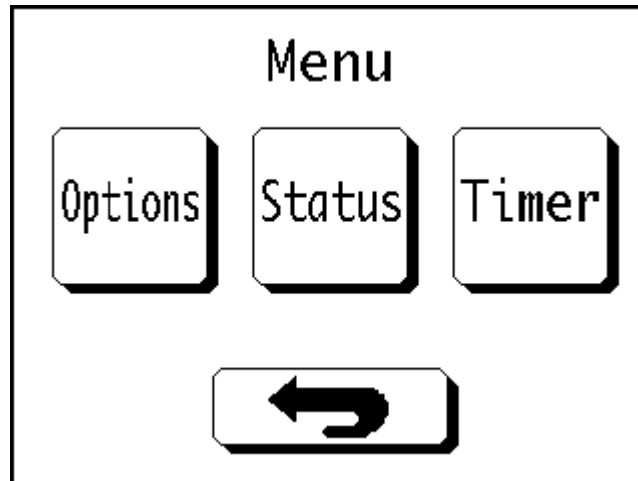
- Select a power setting between '1' and '5'; where '5' is the brightest, and '1' is the most dim.
- Press the 'Return' button to return to the previous screen.



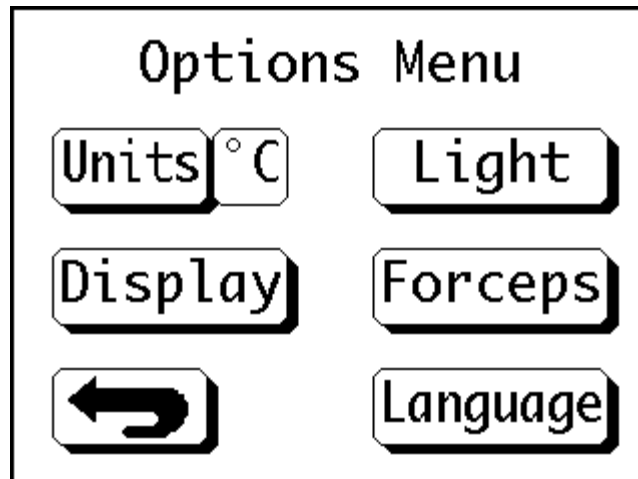
## Forceps Block Power Settings

To adjust the forceps block power setting:

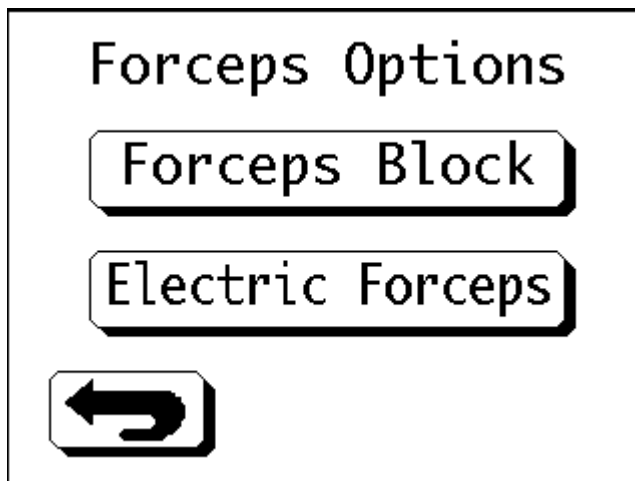
- Press the 'Options' button in the Main Menu.



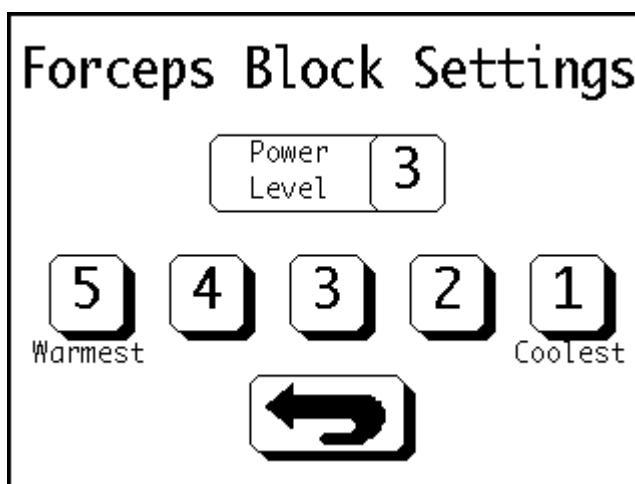
- Press the 'Forceps' button in the Options Menu.



- The Forceps Options screen will appear.



- Press the 'Forceps Block' button to display the Forceps Block Settings screen.



- Select a power setting between '1' and '5'; where '5' is the warmest, and '1' is the coolest.
- Press the 'Return' button to return to the previous screen.



**The tips of forceps in the forceps block can reach up to 65°C - Avoid skin contact!**

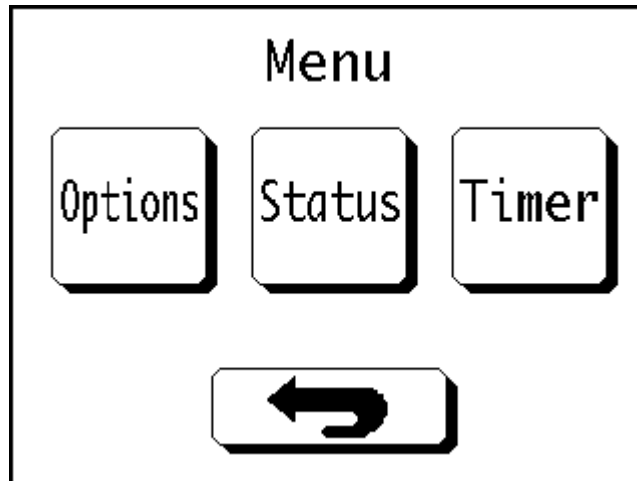


**Ensure forceps are at an appropriate temperature before use.**

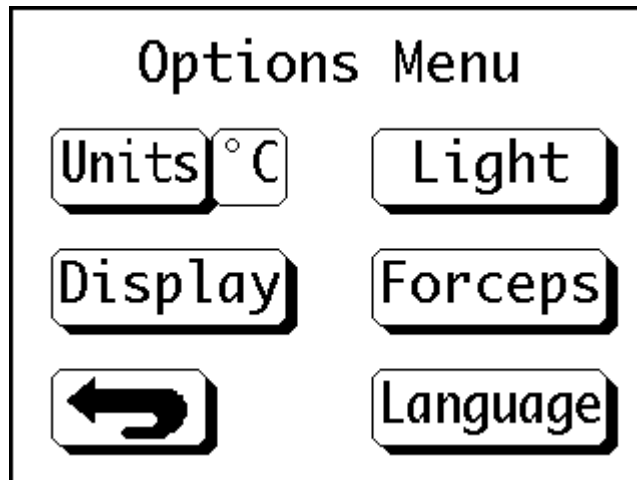
## Language Selection

To change the language which the user interface is displayed in:

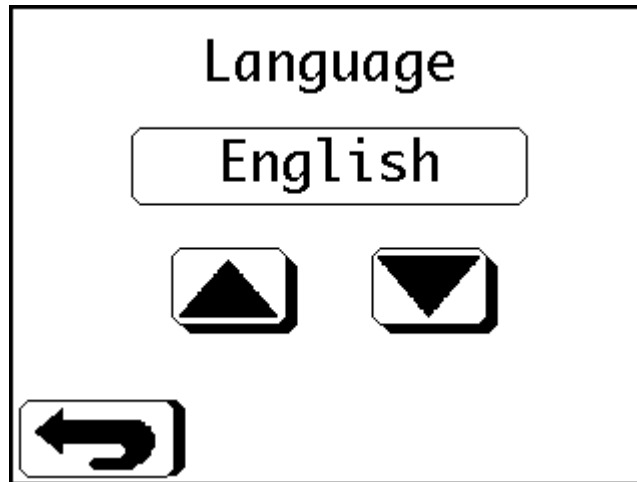
- Press the 'Options' button in the Main Menu.



- Press the 'Language' button in the Options Menu.



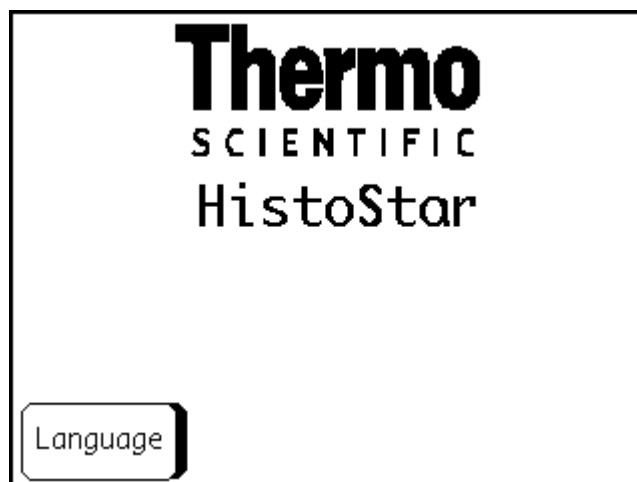
- The Language screen will appear.



- Use the 'Up' and 'Down' buttons to scroll through the available languages.
- Press the 'Return' button to return to the previous screen.

**Note**

*The Language screen can also be accessed from the Startup screen by pressing the 'Language' button in the bottom left-hand corner.*



## Touchscreen Calibration

In the event that the touchscreen is not interpreting touch location accurately, it is possible to calibrate the touchscreen.

To perform a calibration:

- Switch HistoStar 'Off' using the power switch - see Switching Off HistoStar.
- Wait until the touchscreen goes blank and then place a finger on the touchscreen.
- Keeping the finger firmly in contact with the touchscreen, switch HistoStar 'On' using the power switch - see Switching On HistoStar.
- The following screen should appear:



- Remove the finger from the screen - the following screen will appear:



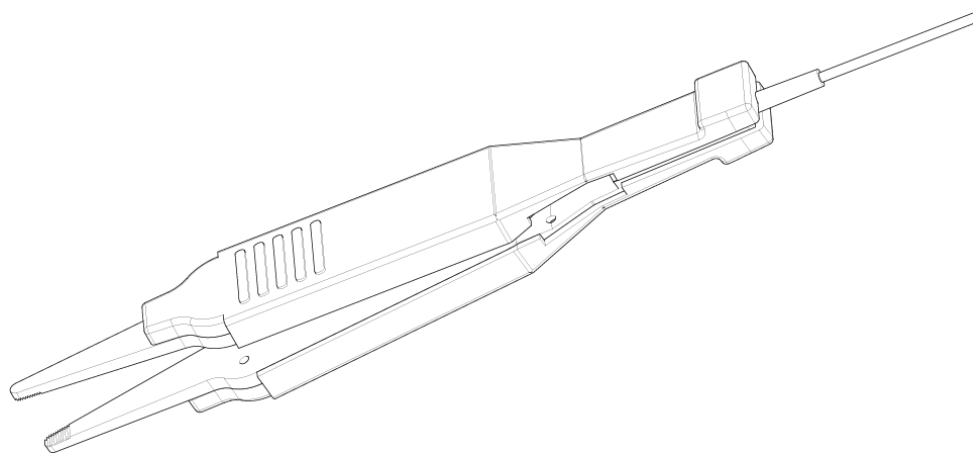
- Touch the 'A' button - the screen will change to the following:



- Touch the 'B' button to complete the calibration sequence.
- HistoStar will now begin to initialise as normal.

## Electric (Heated) Forceps

HistoStar can be used in conjunction with a range of electric, heated forceps which are available as optional accessories - see Appendix A - Spares and Accessories.



The heated forceps come in 3 different tip sizes and have been designed specifically for use with the HistoStar.



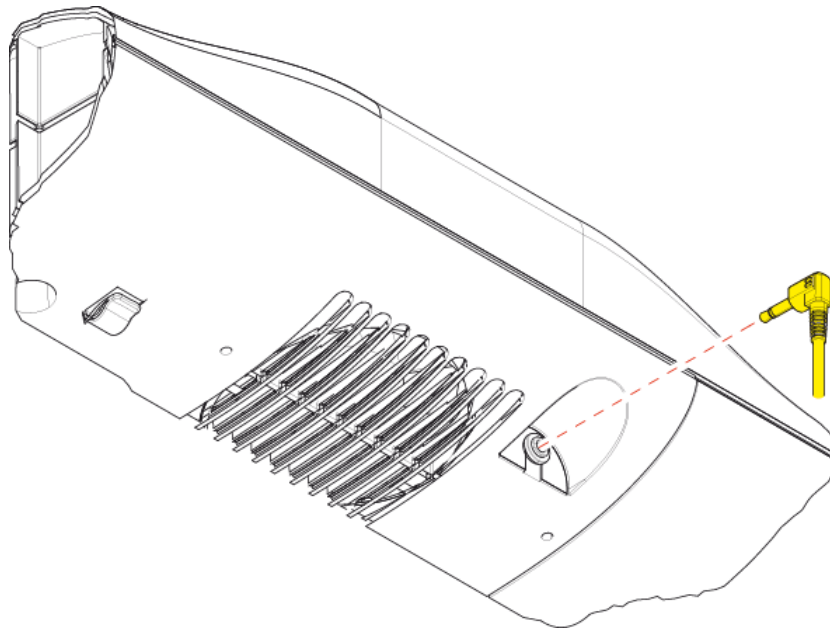
**Only use HistoStar forceps with the HistoStar - use of other forceps may cause damage to the instrument and / or the forceps.**



**Do not use HistoStar forceps with any other instrument, including the Histocentre 3.**

### Connecting the Electric Forceps

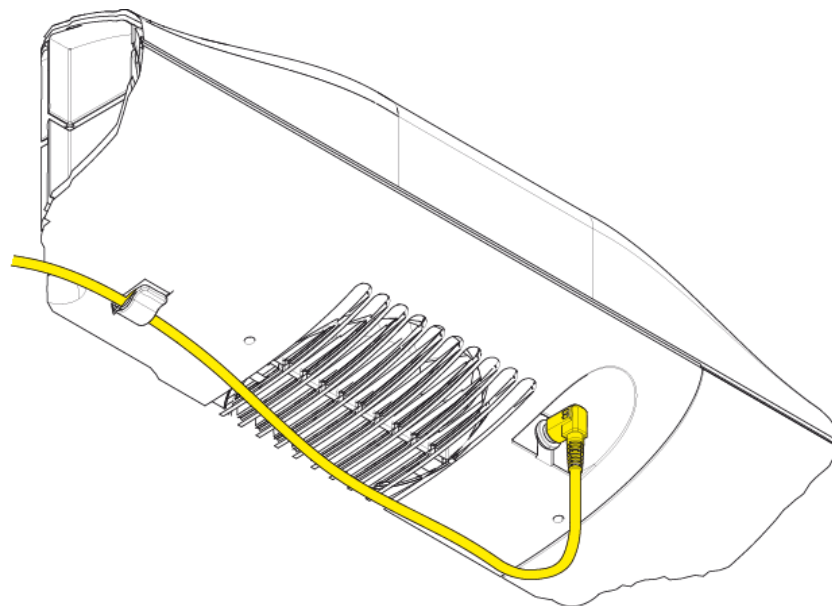
The electric forceps are connected via the socket at the front of the embedding module.



There is also a small hook which can be used to guide the wire to the left-hand side of the dispense if required.

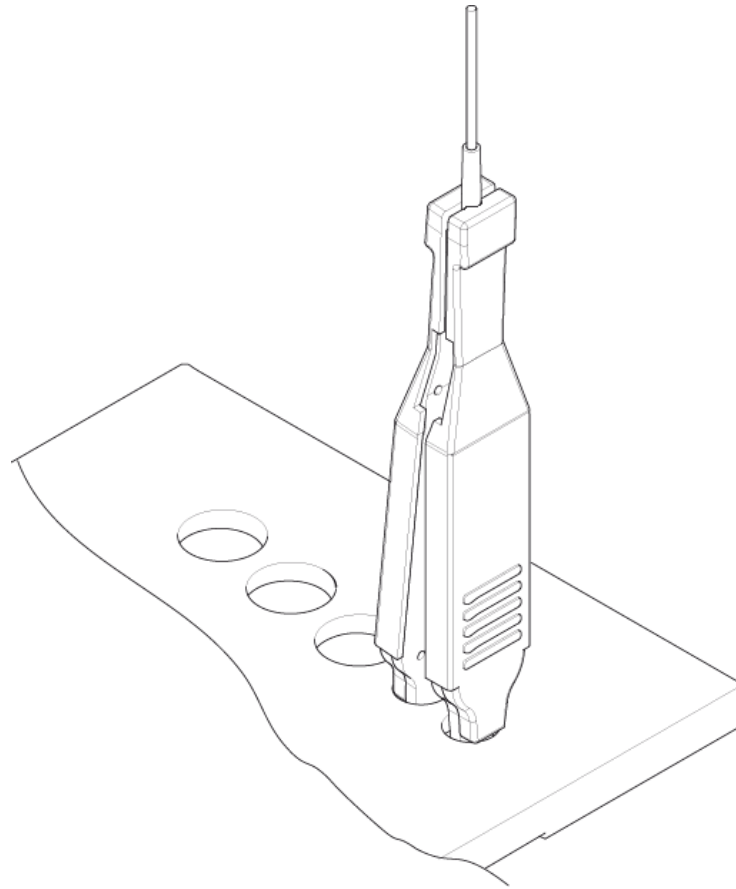


**Only use connect / disconnect the electric forceps when the instrument is switched off.**





Once connected, the electric forceps should be located in the smaller, front holes of the forceps block when not in use.

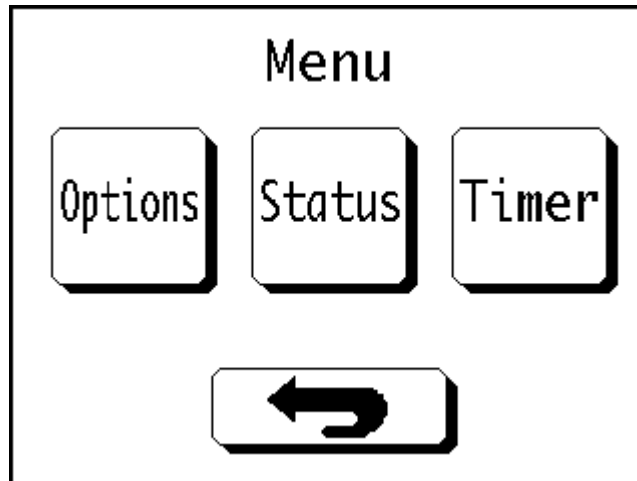


### Using the Electric Forceps

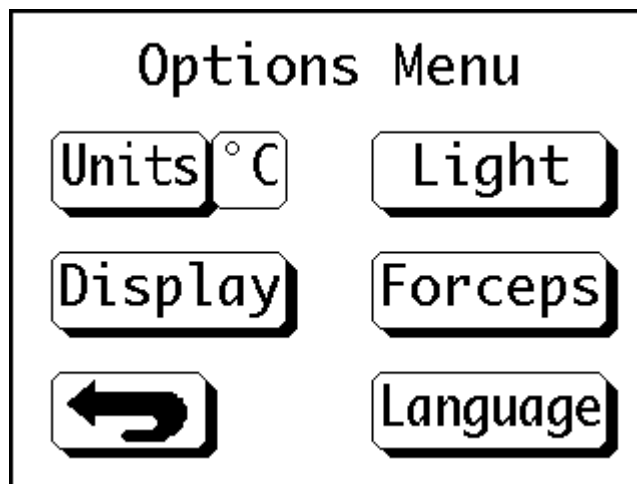
The electric forceps must be switched on before they can be used.

To switch the electric forceps on:

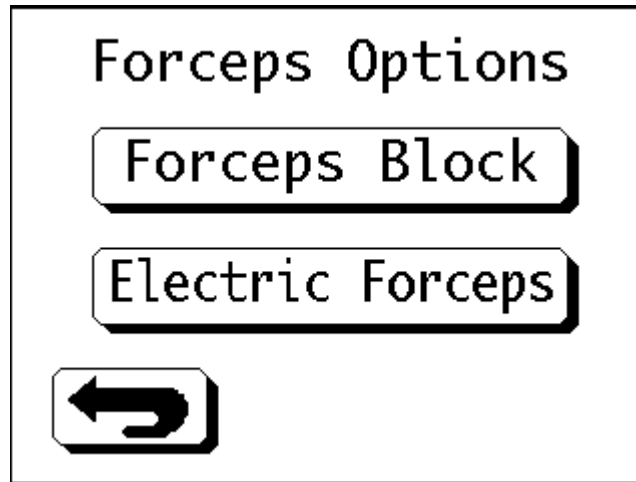
- Press the 'Options' button in the Main Menu.



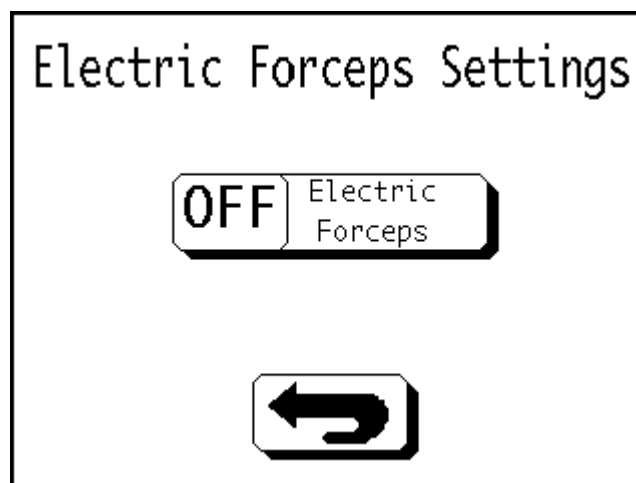
- Press the 'Forceps' button in the Options Menu.



- Press the 'Electric Forceps' button when the Forceps Options screen appears.



- Press the 'Electric Forceps' button to toggle the electric forceps 'On' and 'Off'.



Ensure the electric forceps are at the correct temperature before use.



The tips of the electric forceps are hot during use - only hold the forceps using the insulated grips.

### **Cleaning the Electric Forceps**

To clean the electric forceps:

- With the electric forceps switched 'On' and at their working temperature, use a dry lint-free cloth to wipe any excess wax off the tips.



**Never use xylene to clean the electric forceps.**



**Never immerse the electric forceps in any liquid other than molten wax.**



**Only immerse the tips of the forceps up to the moulded insulation.**

# Chapter 4 - Troubleshooting

## Troubleshooting Tables

### Touch Screen Display

<b>Problem</b>	<b>Possible Cause</b>	<b>Remedy</b>
Display will not turn on	Unit is not powered	Switch the embedding module off for 30 seconds and then back on again to reset the control system  Check that the Mains Lead is connected correctly - see Connections
Key touch position is incorrect	Touchscreen positional misalignment	Recalibrate the touchscreen - see Touchscreen Calibration

## Wax Tank and Dispense

Problem	Possible Cause	Remedy
Wax will not dispense	Insufficient level of wax in wax tank	Add wax to wax tank
	Wax has not yet melted	<p>Allow time for wax to melt</p> <p>Ensure temperature setting is high enough to melt the wax being used</p> <p>Compare the set point temperature to the actual temperature - if the set point temperature is not achieved after a suitable length of time:</p> <ul style="list-style-type: none"> <li>• Switch off the embedding module</li> <li>• Wait for 20 minutes and then switch the embedding module back on</li> </ul> <p>If problem persists call Thermo Fisher Scientific Service Department</p>
	Wax dispense flow control is closed	Open the flow control by turning the knob counter-clockwise
	Instrument malfunction	<p>Switch the embedding module off for 30 seconds and then back on again to reset the control system</p> <p>Perform Heater System Check</p> <p>Call Thermo Fisher Scientific Service Department</p>
Wax will not dispense when using footswitch	Disconnected or poorly fitted air tube	Check that air tube is fully inserted into footswitch connector port - see Connections
	Ruptured tubing or footswitch bellows	Replace footswitch
Erratic temperature control	Instrument malfunction	<p>Switch the embedding module off for 30 seconds and then back on again to reset the control system</p> <p>Compare the set point temperature to the actual temperature - if the set point temperature is not achieved after a suitable length of time:</p> <ul style="list-style-type: none"> <li>• Switch off the embedding module</li> <li>• Wait for 20 minutes and then switch the embedding module back on</li> </ul> <p>If problem persists call Thermo Fisher Scientific Service Department</p>

Wax tank will not heat up	Wax tank heater not switched on	Switch on the wax tank heater - see Temperature Set Points
	Instrument malfunction	<p>Switch the embedding module off for 30 seconds and then back on again to reset the control system</p> <p>Compare the set point temperature to the actual temperature - if the set point temperature is not achieved after a suitable length of time:</p> <ul style="list-style-type: none"> <li>• Switch off the embedding module</li> <li>• Wait for 20 minutes and then switch the embedding module back on</li> </ul> <p>Perform Heater System Check</p> <p>Call Thermo Fisher Scientific Service Department</p>
Excessive wax drips from the dispenser	Debris blocking the valve seal	Call Thermo Fisher Scientific Service Department
Wax dispenses continuously	Dispense lever jammed	<p>Check operation of dispense lever</p> <p>Call Thermo Fisher Scientific Service Department</p>
	Footswitch activated	<p>Check that footswitch is not being depressed accidentally</p> <p>Check footswitch tubing for kinks</p>

## Forceps Block

Problem	Possible Cause	Remedy
Does not heat up sufficiently to melt wax off forceps	Power level too low for wax in use	Increase the power level of the forcep block - see Temperature Set Points
Does not heat up	Instrument malfunction	Switch the embedding module off for 30 seconds and then back on again to reset the control system Perform Heater System Check Call Thermo Fisher Scientific Service Department



## Hot Spot

Problem	Possible Cause	Remedy
Hot spot will not heat up	Hot spot heater not switched on	Switch on the hot spot heater - see Temperature Set Points
	Instrument malfunction	Switch the embedding module off for 30 seconds and then back on again to reset the control system  Compare the set point temperature to the actual temperature - if the set point temperature is not achieved after a suitable length of time: <ul style="list-style-type: none"> <li>• Switch off the embedding module</li> <li>• Wait for 20 minutes and then switch the embedding module back on</li> </ul> Perform Heater System Check  Call Thermo Fisher Scientific Service Department
Hot spot lights do not switch on	Lighting not switched on	Switch on the hot spot lights - see Instrument Lighting
	Instrument malfunction	Switch the embedding module off for 30 seconds and then back on again to reset the control system  Perform Heater System Check  Call Thermo Fisher Scientific Service Department

## Tissue Storage Tank

Problem	Possible Cause	Remedy
Wax not fully melted	Wax has not yet melted	Allow time for wax to melt Ensure temperature setting is high enough to melt the wax being used Compare the set point temperature to the actual temperature - if the set point temperature is not achieved after a suitable length of time: <ul style="list-style-type: none"> <li>• Switch off the embedding module</li> <li>• Wait for 20 minutes and then switch the embedding module back on</li> </ul> If problem persists call Thermo Fisher Scientific Service Department
	Wax surface not melted	Close tissue storage cover during warm-up as draughts can cause a skin to form on the surface of the wax.
Tank does not heat up	Instrument malfunction	Switch the embedding module off for 30 seconds and then back on again to reset the control system Perform Heater System Check Call Thermo Fisher Scientific Service Department

## Temperature Sensors

Problem	Possible Cause	Remedy
Display shows current temperature as 'XXX'	Sensor malfunction	Perform Heater System Check Call Thermo Fisher Scientific Service Department

## Base Mould Storage

Problem	Possible Cause	Remedy
Base mould storage does not heat up	Base mould storage heater is not switched on	Ensure heater is switched on - see Temperature Set Points Ensure temperature setting is correct Compare the set point temperature to the actual temperature - if the set point temperature is not achieved after a suitable length of time: <ul style="list-style-type: none"> <li>• Switch off the embedding module</li> <li>• Wait for 20 minutes and then switch the embedding module back on</li> </ul> If problem persists call Thermo Fisher Scientific Service Department
	Instrument malfunction	Switch the embedding module off for 30 seconds and then back on again to reset the control system Perform Heater System Check Call Thermo Fisher Scientific Service Department

## Cold Spot

Problem	Possible Cause	Remedy
Inadequate cooling	Surface of cold spot has not reached the required temperature yet	Allow sufficient time for the cold spot to cool.
	Fan air flow blocked	Remove blockage from fan inlet directly underneath cold spot
	Instrument malfunction	Switch the embedding module off for 30 seconds and then back on again to reset the control system  Call Thermo Fisher Scientific Service Department

## Cold Plate

Problem	Possible Cause	Remedy
Inadequate cooling	Ambient temperature is above 27°C	Reduce the ambient temperature or increase air circulation around instrument
	Condenser air-flow is blocked	Remove blockage from fan inlets
	Instrument malfunction	Call Thermo Fisher Scientific Service Department
Compressor will not switch on	Cold module not powered	Check fuses and replace if necessary - see Fuse Replacement Check that Mains lead is connected correctly
	Cold module set for Timer operation but not connected to embedding module	Either: Connect to embedding module - see Connections or Change setting to 'Compressor On'
	Power not switched on via embedding module	Switch cold plate on via cooling options screen - see Temperature Set Points

**Electric Forceps**

<b>Problem</b>	<b>Possible Cause</b>	<b>Remedy</b>
Do not heat up or fail to reach working temperature	Power is not switched on	Ensure electric forceps are switched on - see Electric Forceps Ensure temperature setting is correct
	Faulty or poor connection	Ensure the jack is fully inserted into the connection socket
	Failure of heating element	Replace forceps

## Poor Sectioning

Problem	Possible Cause	Remedy
Poor Sectioning	Wax tank too hot	Check the melting point of the wax and reduce the temperature setting as required - see Temperature Set Points.
	Contaminated or inappropriate wax	<ul style="list-style-type: none"> <li>• Drain the wax tank - see Draining the Wax Tank</li> <li>• Clean the wax tank - see General Instrument Cleaning</li> <li>• Refill the wax tank - see Filling with Wax</li> </ul>
	Flow of wax into mould is too fast causing trapped bubbles	Reduce the wax dispense flow - see Dispense Lever Adjustment and Wax Flow Control.
	Surface of block is uneven due to mould being too cold	Use the mould storage area to pre-warm the moulds prior to use.
	Surface of block is uneven due to unclean mould	Ensure the moulds are clean before use.
	Tissue storage tank is too hot	Check the melting point of the wax and reduce the temperature setting as required - see Temperature Set Points.
	Cross contamination of wax in wax tank - mixing of different waxes	<ul style="list-style-type: none"> <li>• Drain the wax tank - see Draining the Wax Tank</li> <li>• Clean the wax tank - see General Instrument Cleaning</li> <li>• Refill the wax tank - see Filling with Wax</li> </ul>
	Layers of wax in block	Block left on cold-spot for too long after tissue orientation, before being topped up with wax.
	Block does not fit in microtome chuck due to excessive wax residue	Ensure blocks are trimmed properly using the Paratrimmer.
	Block breaks in chuck	Cassette positioned incorrectly in mould during embedding
Insufficient support for tissue caused by mould being too small for the sample	Use a larger mould	



## Heater System Check

To assist the service team in troubleshooting your problem, please carry out the following system checks and record the values before calling the Thermo Fisher Scientific Service Department for technical support:

- From the 'Status Menu' press the button for the required heater.
- Check that the heater is set to 'On'.
- Check that the current temperature is within 5°C of the set point temperature.

### Note

*Ensure that a suitable amount of time has been allowed for the heater to reach its set point temperature.*

- If the current temperature is displayed as 'XXX', this indicates that there is a sensor issue.



# Chapter 5 - Cleaning and Maintenance

## Safety

Before carrying out any cleaning or maintenance on the HistoStar , ensure that the following safety statements have been read and understood.



Check HistoStar for damage prior to performing any cleaning or maintenance. If any damage is noted, remove the unit from service immediately and contact the Thermo Fisher Scientific Service Department.



Molten wax is hot and can cause severe burns.



Allow all surfaces, hot or cold, to reach room temperature prior to cleaning.



When dealing with solvents and cleaning chemicals, take all suitable precautions to minimize exposure during cleaning.



Cold plate should be switched off when not in use to prevent excessive frost build up.



Before using any cleaning or decontamination method except those specified in this document, users should check with their Thermo Fisher Scientific representative that the proposed method will not damage the unit.



If the HistoStar has been used with, or has come into contact with hazardous material, ensure that the appropriate decontamination procedures have been followed (See World Health Organization 'Laboratory Biosafety Manual').

## General Instrument Cleaning



To ensure that this instrument remains in peak condition, it is strongly recommended that it is serviced annually by a Thermo Fisher Scientific approved Service Engineer.



When cleaning the surfaces of HistoStar, ensure any necessary precautions are taken to avoid cross-contamination of specimens.



Xylene has a flash point of 27°C - 32°C and is therefore not suitable for use when cleaning the HistoStar.

### Cleaning the Casework and Cold Plate

To clean the casework and cold plates:

- Use the plastic scraper supplied to remove hardened wax from the surfaces.
- Once the wax has been removed, use a damp, lint-free cloth to wipe the surfaces.

### Cleaning the Heated Surfaces

To clean the heated surfaces:

- Use a dry, lint-free cloth to wipe the surfaces clean.
- Pay particular attention to the drainage channels.
- Clean the forceps block holes to ensure that any debris is removed.

#### Note

*A cotton tipped swab is useful for cleaning the drainage channels.*



**Avoid skin contact with the heated surfaces as painful injuries can occur.**

### Cleaning the Touchscreen

To clean the touchscreen:

- Use a dry, lint-free cloth to wipe the touchscreen clean of fingerprints.
- If any wax has dried onto the touchscreen surface, carefully remove it using the plastic scraper supplied.



**Do not use mineral acids, abrasives, benzyl alcohol or high pressure steam to clean the touchscreen.**

## Daily Tasks

The following cleaning tasks should be carried out after use:

- Wipe down the main surfaces to remove molten wax.
- Empty the waste wax tray.

### Note

*In the case of a large spillage on the main deck, pay close attention to the level of wax in the waste wax tray and empty as required.*

- Wipe the mould storage area to remove any wax build-up - pay particular attention to the front lip area where the wax should collect.
- Wipe the surface of the cold plate.
- Check the wax level in the wax tank and top up as required.

## Weekly Cleaning

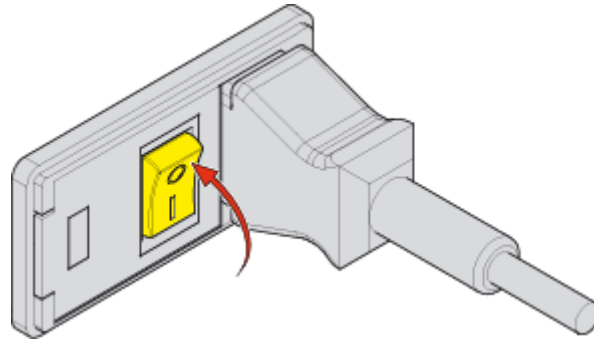
The following cleaning tasks should be carried out about once every week:

- Remove the forceps block cover and wipe away any wax.
- Clean the touchscreen.
- Remove waste wax tray and clean around the drain holes and the metal plate that the tray rests on.
- Check for wax build-up on the casework and remove if necessary.
- Remove storage drawer in cold module and clean if necessary.
- Depending on usage, it may be necessary to drain the tissue storage tank and refill it with fresh wax.

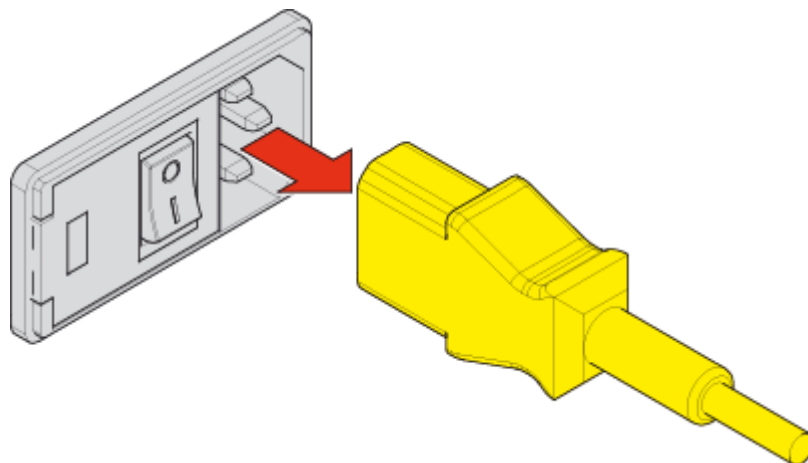
## Fuse Replacement

To replace the fuses:

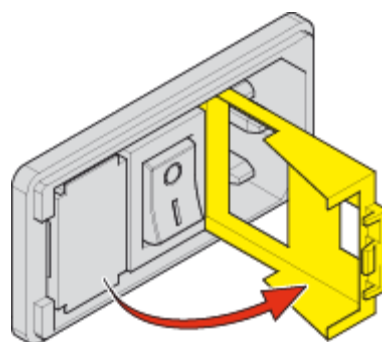
- Ensure HistoStar is switched off and disconnected from the mains power supply.



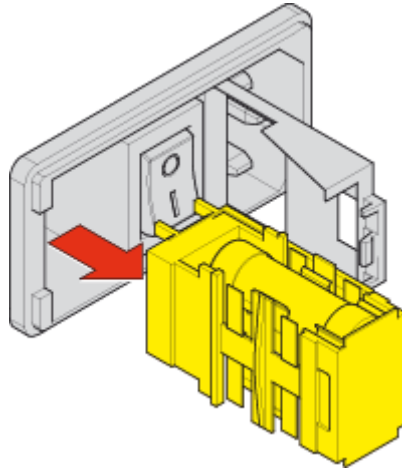
- Remove the power lead from the mains inlet connector.



- Open the hinged cover to allow access to the fuse drawer.



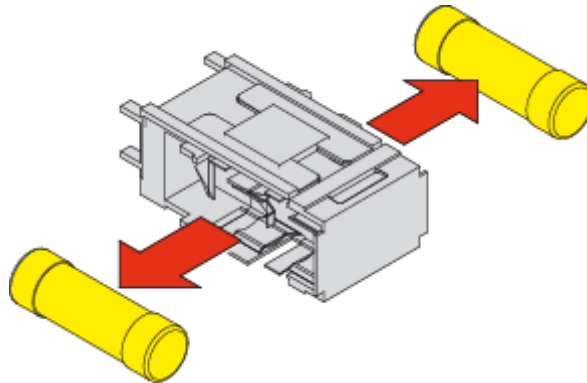
- Remove the fuse drawer from the recess.



**Note**

*It may be necessary to use a suitable lever to remove the fuse drawer.*

- Remove the fuses from the fuse drawer and replace.



**Note**

*Always replace fuses as a pair.*



**Ensure the replacement fuses are the correct rating - see System Specification.**



**Fuses should only be replaced by a competent person.**

- To replace the fuse drawer follow the above procedure in reverse.



**If the fuses blow frequently / repeatedly, disconnect the unit from the mains supply and contact the Thermo Fisher Scientific Service Department.**



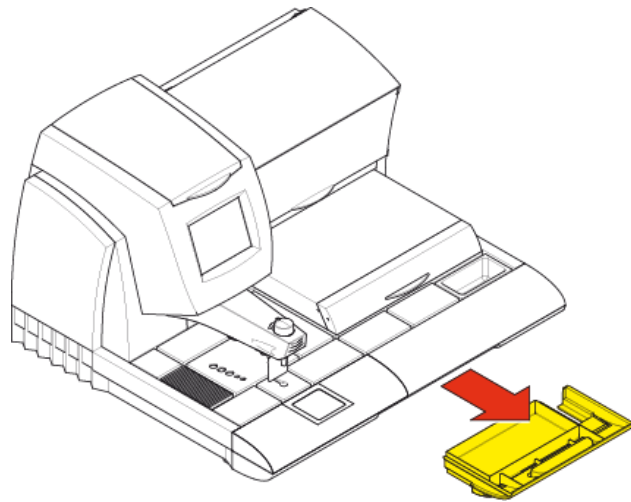
## Emptying the Waste Wax Drawer

To empty the waste wax drawer:

### Note

*It is advisable to ensure that the tissue storage tank is switched on when emptying as this will ensure that the wax remains molten and does not solidify in the bottom of the removable waste tray.*

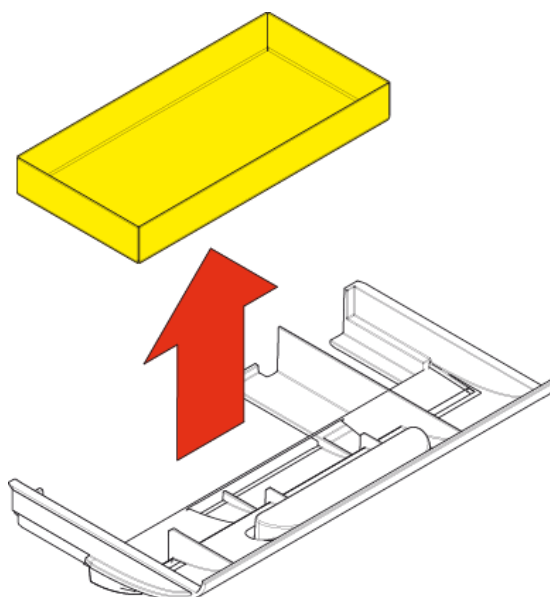
- Completely remove the waste wax tray from the unit.



- Lift out and empty the removable waste tray.



**Take care when removing the waste tray as it may be hot!**



- Dispose of the waste wax according to local regulations.
- Use a dry paper towel to wipe any molten wax off the waste tray and the metal plate that the drawer rests on in the instrument.
- Use the spatula provided to scrape any dried wax off the metal plate and the drawer moulding.
- Replace the waste tray in the waste wax drawer.
- Replace the waste wax drawer.

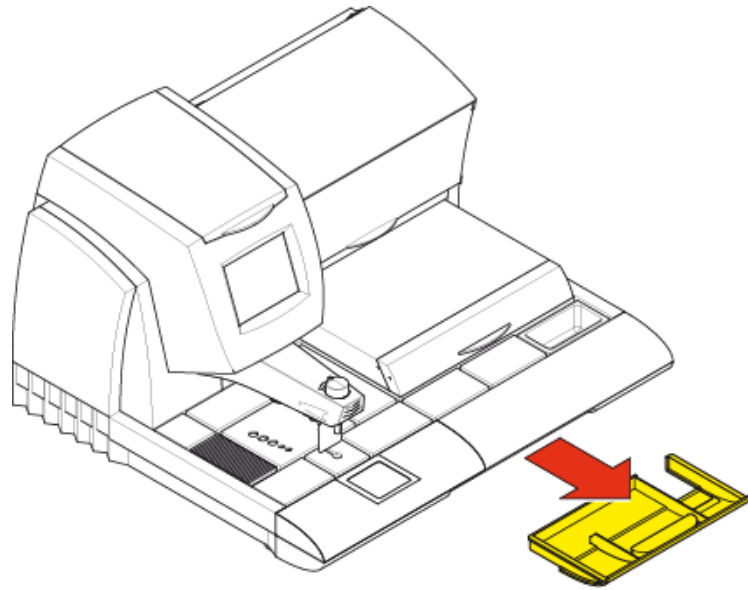
## Using the Wax Draining Assembly

The Wax Draining Assembly is used to aid safe and efficient draining of molten wax from the HistoStar.

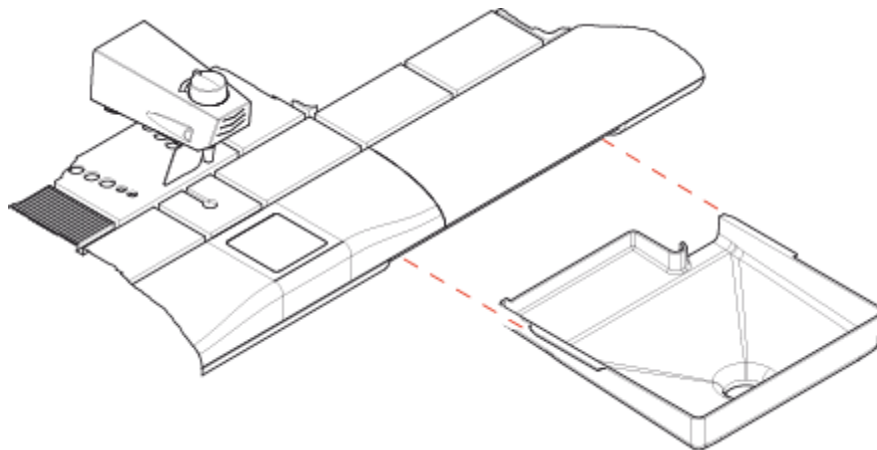
The Wax Draining Assembly is made up of several components which must be assembled before use.

### Assembly

- Completely remove the waste wax tray from the unit.



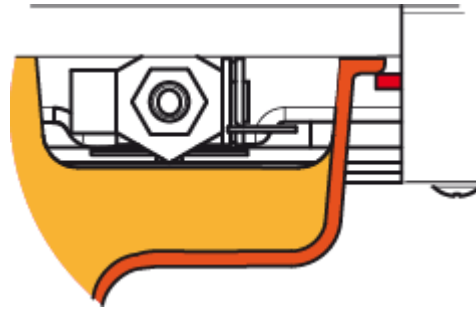
- Fit the wax draining funnel as shown.



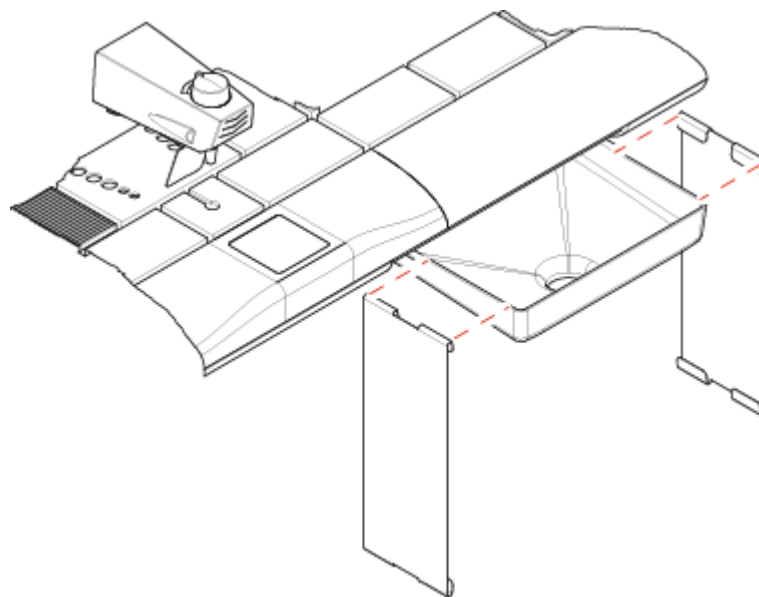
**Note**

*When fitting the wax draining funnel, ensure that the slides on the edges of the funnel are located on the drawer runners as shown below.*

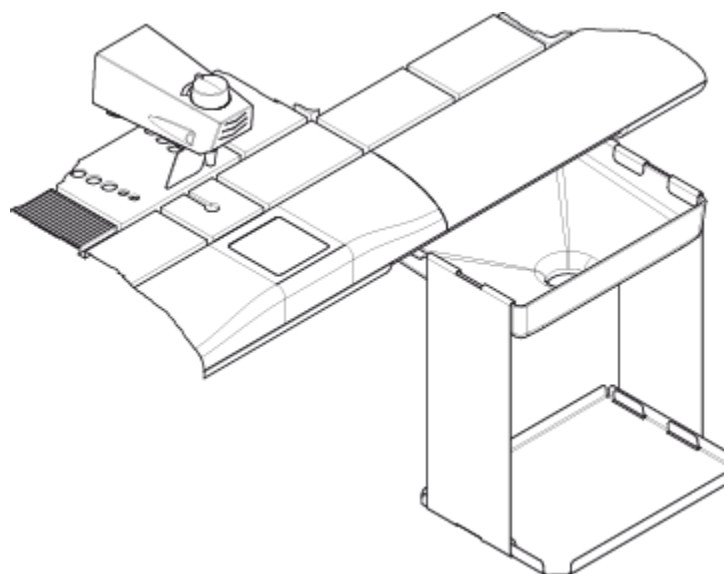
*The HistoStar should be positioned so that the funnel hole overhangs the edge of the worktop, allowing the assembly to hang below it.*



- Hang the two side pieces on the edges of the wax draining funnel as shown.



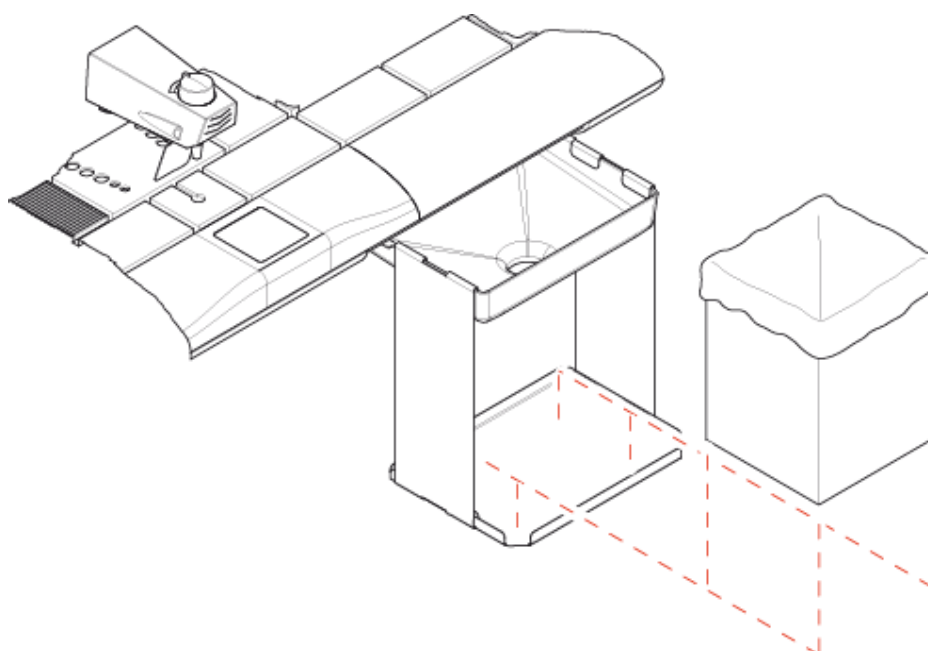
- Fit the base plate between the two hanging side pieces as shown.



**Note**

*Ensure the hooks locate in the slots in the base plate.*

- Place a suitable, leak-proof container on the base.

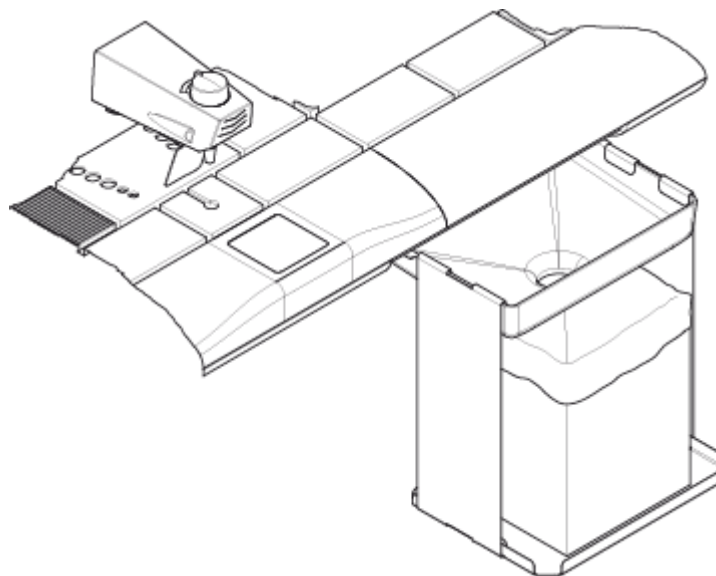


**Notes**

*A 2.5kg Thermo Scientific Histoplast box (including the internal plastic bag) is ideal.*

*Maximum recommended dimensions of the container are 170 x 165 x 210mm (W x D x H).*

- The Wax Draining Assembly is now ready to use.



**See also:**

Draining the Tissue Storage Tank

Draining the Wax Tank

## Draining the Tissue Storage Tank

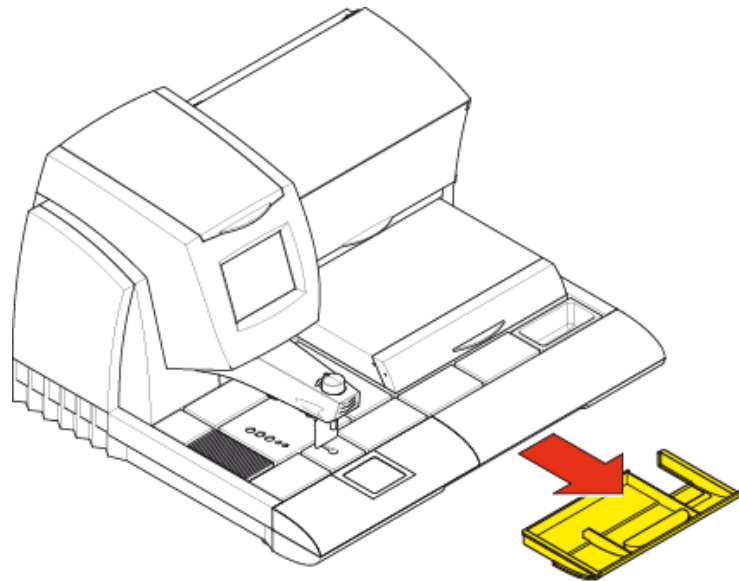
To drain the tissue storage tank:

- Ensure the wax in the tissue storage tank is molten and the tissue storage tank is switched on.

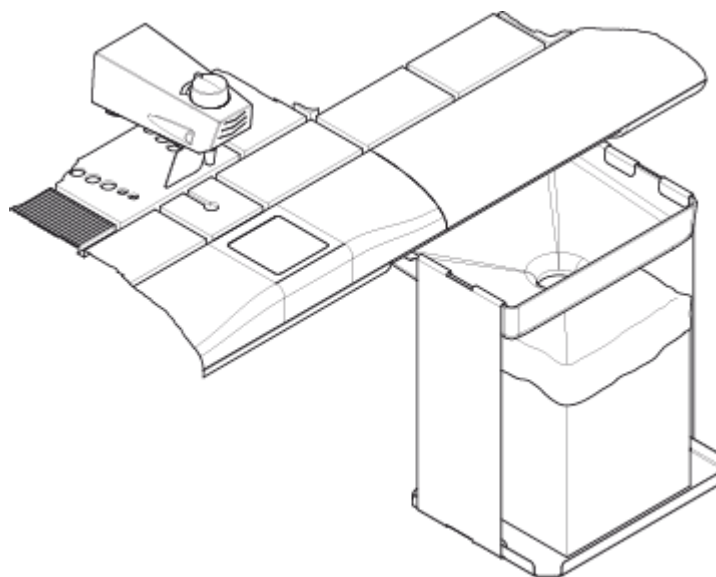
### Note

*It is advisable to ensure that the hot-spot is switched on when draining as this will ensure that the wax remains molten until it has exited the internal pipework.*

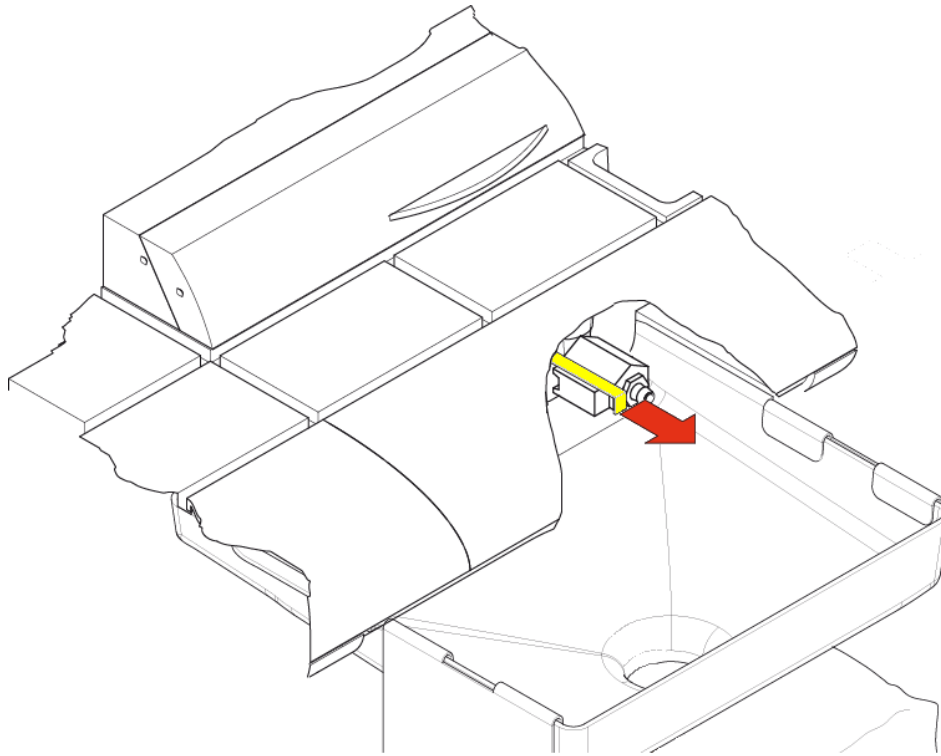
- Completely remove the waste wax tray from the unit.



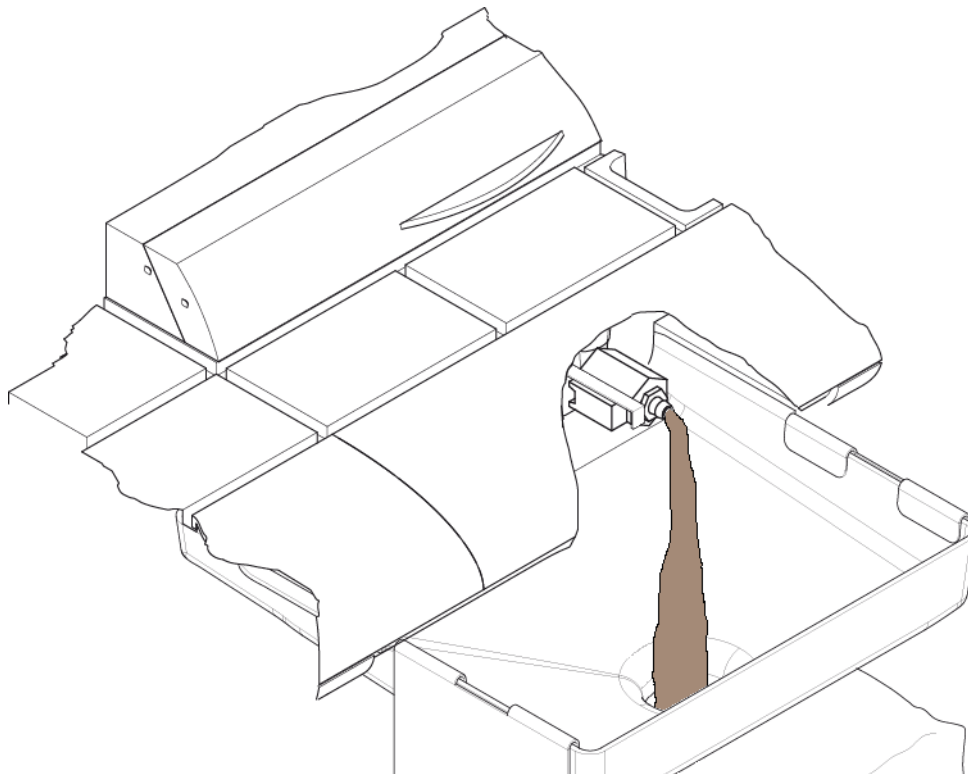
- Fit the wax draining container assembly - see Using the Wax Draining Assembly.



- To drain the wax, pull the drain valve lever outwards as shown.



- The wax should drain out of the tissue storage tank and into the wax draining assembly.







The box containing the drained wax may be heavy when draining is complete - take care when lifting.



If the tissue storage tank has been overfilled, it may be necessary to change the box part way through the draining process.



Take care to avoid spilling molten wax during draining.



Wax being drained is hot and can cause severe burns.

- Dispose of drained wax according to local regulations.

## Draining the Wax Tank

To drain the wax tank:

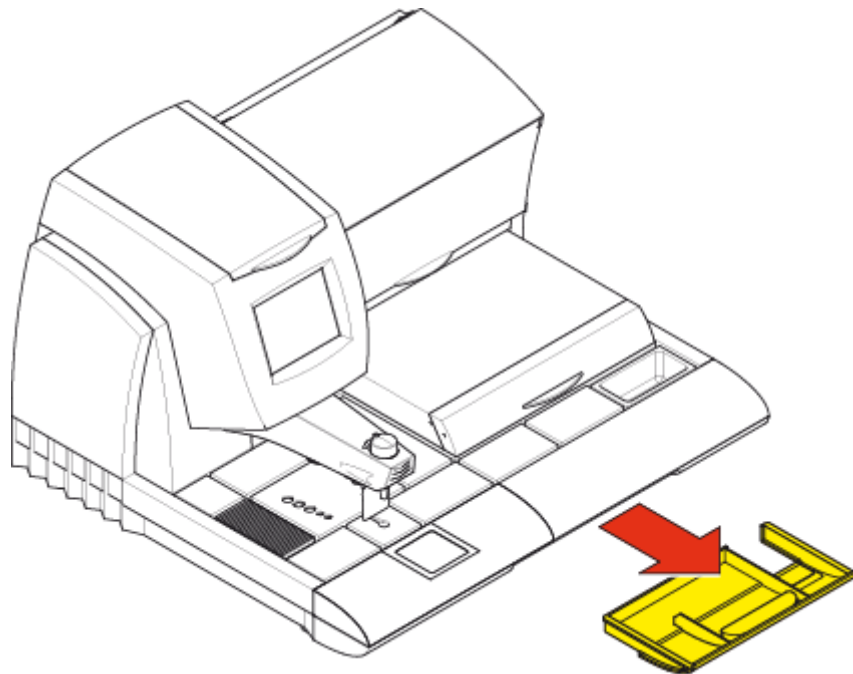
- Ensure the wax in the wax tank is molten.

### Notes

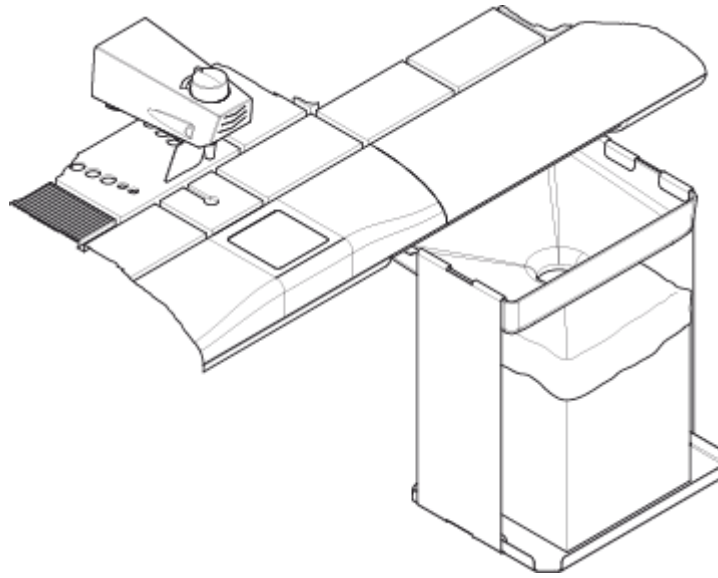
*It is advisable to ensure that the hot-spot and the tissue storage tank are switched on when draining as this will ensure that the wax remains molten until it has exited the internal pipework.*

*It is recommended that the wax tank should be no more than half full before draining. If the wax tank is too full, manually remove wax from the wax tank by opening the wax tank cover and bailing out the wax using a suitable vessel.*

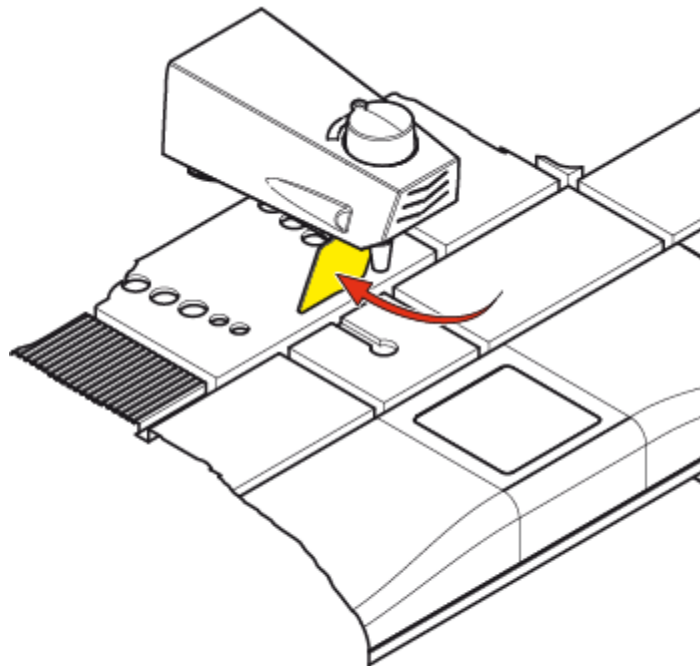
- Completely remove the waste wax tray from the unit.



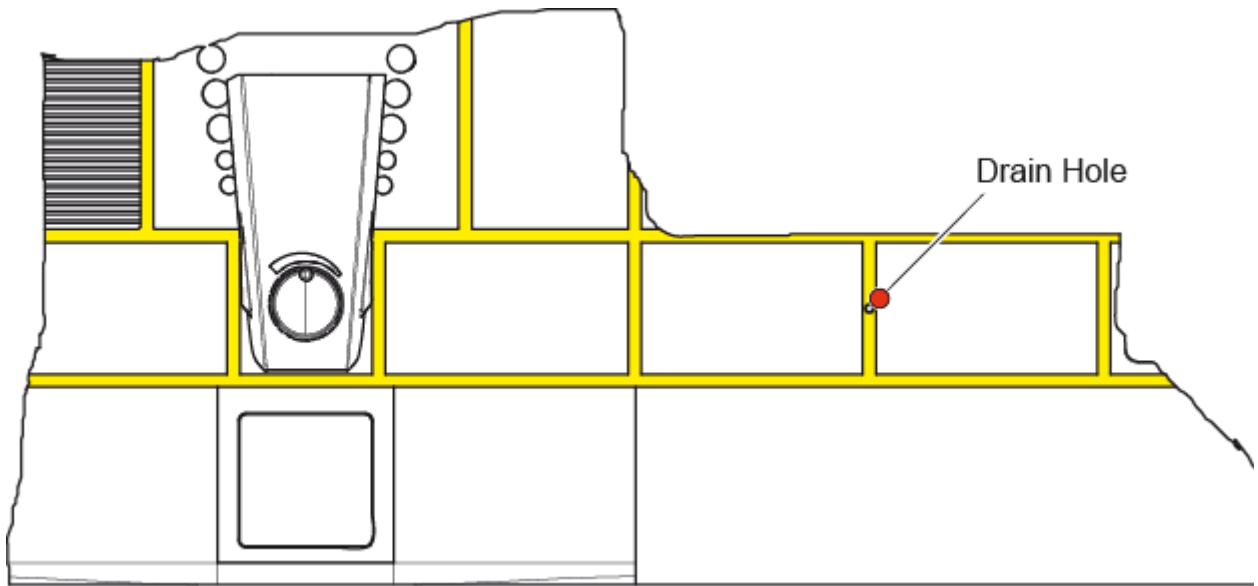
- Fit the wax draining assembly - see Using the Wax Draining Assembly.



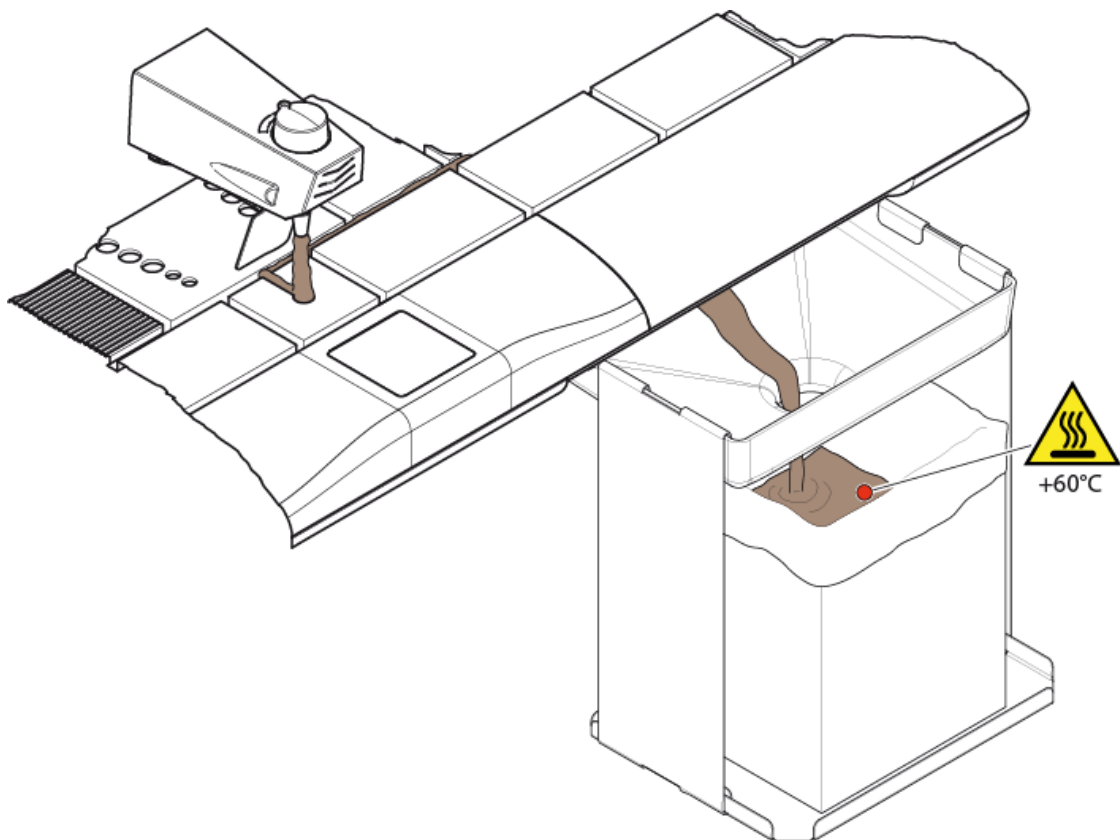
- To drain the wax, push the dispense lever towards the back of the instrument as shown.



- The wax will drain out of the wax tank and into the wax draining channels and out of the drain hole.



- The wax should drain from the drain hole and into the wax draining assembly.



**Note**

*After the wax has stopped being dispensed, allow at least 10 minutes for the residual wax in the drainage channels to drain into the wax draining assembly.*

*When removing the wax draining assembly, immediately insert the waste wax tray to catch any further residue.*



**Take care to avoid spilling molten wax during draining.**



**Wax being drained is hot and can cause severe burns.**

- Dispose of drained wax according to local regulations.



# Appendices

## Appendix A - Spares and Accessories

### Accessories

Part Number	Description
A81010030	Tamping tools kit - set of 2 - 1 x 20mm and 1 x 12mm
A81010031	Spatula
A81010026	Cassette lid storage cover
A81010032	Magnifier assembly
AP16629	Footswitch
A81010033	Electric, heated forceps - Red - 1mm tip
A81010034	Electric, heated forceps - Yellow - 2mm tip
A81010035	Electric, heated forceps - Blue - 4mm tip
A81000004	Cold module - 220-240V - 50/60Hz
A81000005	Cold module - 100-120V - 50/60Hz
A81000006 *	Cold module - 220-240V - 50/60Hz
A81010036	Document holder kit

\* China variant - not available in ROW

### Spares

Part Number	Description
A81010037	Fuse kit
A81010055	Waste wax draining assembly kit

**Waxes (Paraffins)**

Part Number	Description	Qty.
6774006	Histoplast	1 x 2.5kg
6774060	Histoplast	1 x 10kg
8330	Histoplast PE	8 x 1kg
8331	Histoplast IM	8 x 1kg
8332	Histoplast LP	8 x 1kg
9810	Fast Flex	10 x 2lb
8334	Type 1	10 x 2lb
8335	Type 3	10 x 2lb
8336	Type 6	10 x 2lb
8337	Type 9	10 x 2lb
8338	Type H	10 x 2lb
8339	Type L	10 x 2lb
B1002490	PrcsnCt56-58C	4 x 2.5kg
T8330	Ameriplast PE	8 x 1kg
T8331	Ameriplast IM	8 x 1kg
T8332	Ameriplast LP	8 x 1kg
031-557	Fisher Brand	8 x 2lb



## Appendix B - Packing Instructions, Removal from Use and Disposal

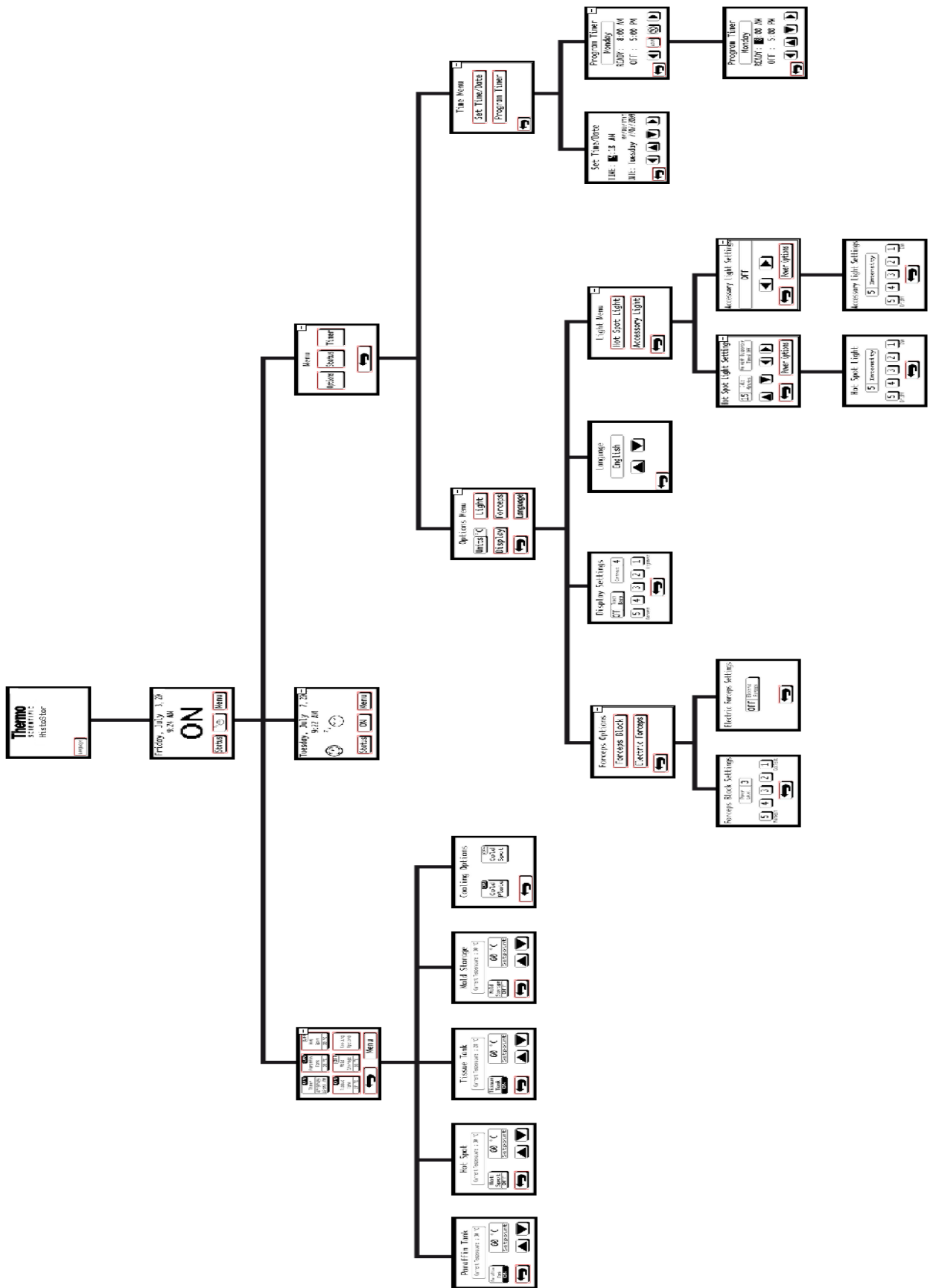


If the HistoStar has been used with, or has come into contact with hazardous material, ensure that the appropriate decontamination procedures have been followed (See World Health Organization 'Laboratory Biosafety Manual').

To repack the HistoStar:

- Drain all wax from the instrument and wipe away residue using a dry paper towel or a lint-free cloth.
- Allow the embedding module to cool to ambient temperature.
- Disconnect both units from the Mains power supply and each other.
- Remove loose parts and pack into the accessories box - see Unpacking HistoStar.
- Pack the modules and accessories box by reversing the unpacking instructions - see Unpacking HistoStar.
- Use sticky tape to keep the wax tank lid and base mould storage compartment door from opening during transit.
- If returning the unit to Thermo Fisher Scientific, ensure that the Product Return Safety Declaration certificate has been completed and is packed with the shipping documentation - see Safety Information.
- When removing from use for storage, please note and observe the storage conditions - see System Specification.
- For end of life disposal, follow local regulations. In Europe disposal should be in accordance with WEEE regulations – see Safety Information.
- The Cold Module contains refrigerant gases which should be recovered prior to final disposal of the instrument.

# Appendix C - Screen maps



## Appendix D - Approved Reagent List

The following reagents have been approved for use with HistoStar.

### Note

*Use of unapproved reagents may cause damage to the instrument and / or samples.*

### Waxes (Paraffins)

Histoplast

Histoplast LP

Histoplast PE

Histoplast IM

Fast Flex

Type 1

Type 3

Type 6

Type 9

Type H

Type L

PrdsnCt56-58C

Ameriplast LP

Ameriplast PE

Ameriplast IM

Fisher Brand

### Cleaning Reagents

Water

10% Commercial Bleach



# Index

## A

Accessories.....	1, 111
Adjustable Feet.....	37
Air-Vents.....	37
Altitude.....	15
Audio Settings.....	47, 58

## B

Base Mould.....	20
Base Mould Storage.....	9, 20
Battery.....	1

## C

Cassette.....	20
Cleaning.....	24
Cassette Lid Storage Dish.....	9, 20
Celsius, Degrees.....	51
Chapter Summary.....	5
Chemical Safety.....	1
Cleaning.....	92
Cold Module.....	9, 34, 40
Cold Plate.....	9, 34
Cold Plate Timer	
Connector.....	9, 34
Cold Spot.....	9, 20
Compatibility.....	8
Connections	
Cold Plate Timer.....	9, 34
Foot Switch.....	9
Heated Forceps.....	9
Mains Power.....	9

## D

Daily Tasks.....	93
Date.....	49
Depth.....	15
Disable Timer.....	55

Dispense Flow Control.....	9
Dispense Lever.....	9, 20, 106
Dispense Lever Position.....	44
Display Settings.....	47, 58
Drain Hole.....	106
Drain Valve.....	9
Drainage.....	37
Draining Channels.....	106

## E

Edit Timer.....	55
Electrical Safety.....	1
Electrical Specification.....	15
Environment.....	1
Environmental Specification.....	15

## F

Fahrenheit, Degrees.....	51
Flow Control Adjustment.....	44
Footswitch	
Connector.....	9, 34
Forceps Block.....	9
Frequency.....	15
Fuse.....	9, 15, 95
Fuse Drawer.....	95

## G

General Safety.....	1
---------------------	---

## H

Heated Forceps.....	71
Connector.....	9
Heated Module.....	9, 34, 40
Height.....	15
Hot Spot.....	9, 20

## L

Language.....	67
Legal Information.....	3

Levelling.....	37	Lights .....	60
Lights .....	60	Temperature Set Points .....	52
Location .....	37	Temperature Units .....	51
<b>M</b>		Time .....	49
Main Menu.....	47, 55	Timer.....	55
Mains Power Connector.....	9, 34, 95	Touchscreen Calibration .....	69
Mains Power Supply.....	1, 34, 95	Setup .....	37
Maintenance Contract.....	1	Sleep Mode.....	18, 25
<b>O</b>		Spares .....	111
Options Menu.....	49, 51	Symbols .....	5
Over Voltage Category .....	15	System Menu.....	47
<b>P</b>		<b>T</b>	
Packing .....	113	Temperature	
Paratrimmer .....	24	Operating Limits .....	15
Physical Specification .....	15	Recommended Operating.....	15
Pollution Degree .....	15	Set Points .....	52
Power .....	15, 34	Transport .....	15
Power Switch.....	9, 25, 95	Units .....	51
Product Return Safety Declaration .....	1	Time.....	49
<b>R</b>		Timer Control .....	34, 40
Rating Plate.....	9	Disable .....	55
Reagent .....	5, 1, 115	Edit .....	55
Refrigerant Warning.....	3	Timer Control Switch.....	9, 34
Relative Humidity .....	15	Tissue Storage Tank.....	9, 20, 103
Replacement Parts .....	1	Drain Valve .....	9, 103
RoHS Directive.....	1	Touchscreen .....	9, 13
<b>S</b>		<b>U</b>	
Safety Information.....	1, 17, 91	Units, Temperature .....	51
Screen Map .....	114	Unpacking.....	27
Service Contracts.....	1	User Interface .....	13
Settings.....	47	<b>V</b>	
Audio.....	58	Voltage .....	15
Date.....	49	<b>W</b>	
Display.....	58	Warnings .....	5, 1
Forceps Block Power .....	65	Warranty Statement.....	1
Language.....	67	Waste Wax Drawer.....	9, 97, 99

Waste Wax Tray.....9, 103, 106  
 Wax Dispense Flow Control.....44  
 Wax Draining Container..... 103, 106  
 Wax Tank .....42  
     Cover..... 8  
     Draining .....106

WEEE Directive ..... 1  
 Weekly Tasks..... 94  
 Weight..... 15  
 Width ..... 15  
 Workflow ..... 40

