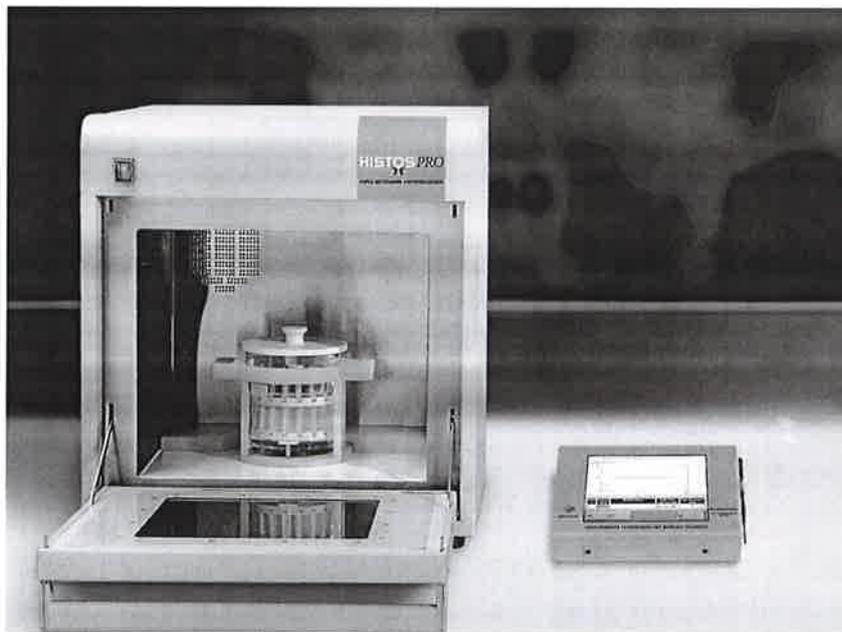


# MILESTONE



**HistosPRO (SW 2.0.0)**  
**Rapid Microwave Histoprocessor**

---

**Operation Manual (MM051)**  
July 2007

Thank you for having selected our system and welcome to the ever growing club of satisfied Milestone users.

We invite you to read carefully this operator manual and to keep it in reach for convenient and fast consulting.

For any possible clarification or any request for assistance please contact either our Representative in your country :

Or:

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Web site [www.milestonemed srl.com](http://www.milestonemed srl.com)

Email [medical@milestonesrl.com](mailto:medical@milestonesrl.com)

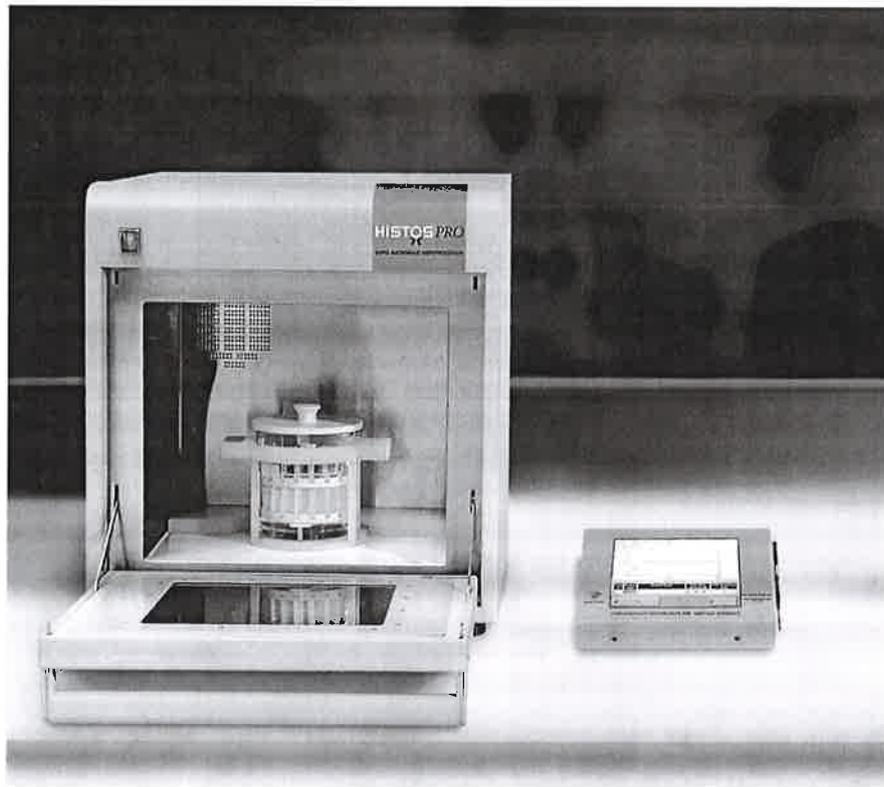
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## 1 INTRODUCTION

### 1.1 INTRODUCTION TO HISTOSPRO



The HISTOSPRO gives you the advantages of state of art microwave Hardware/Software, to obtain consistent and reproducible results in the histopathology laboratory for high throughput tissue processing.

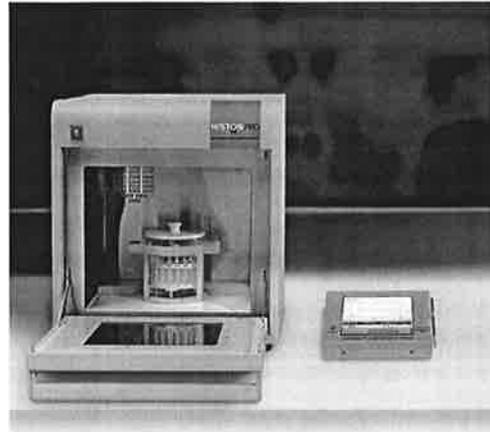
The system and its accessories have been engineered for laboratory use and can therefore withstand the harshest laboratory conditions for continuous use in Histological sample preparation procedures.

This manual refers to both HISTOSPRO system, histoprocessor without the vacuum module. Therefore its application is limited to NON-vacuum processing of specimens with a maximum thickness of up to 3 mm.

1.2 THE HISTOSPRO CONCEPT

**Microwave  
Histoprocessor**

+



**Specially developed  
Histomodules**

+



**A set of pre-stored  
programs**

+



**Handbook of Microwave  
Assisted Procedures**



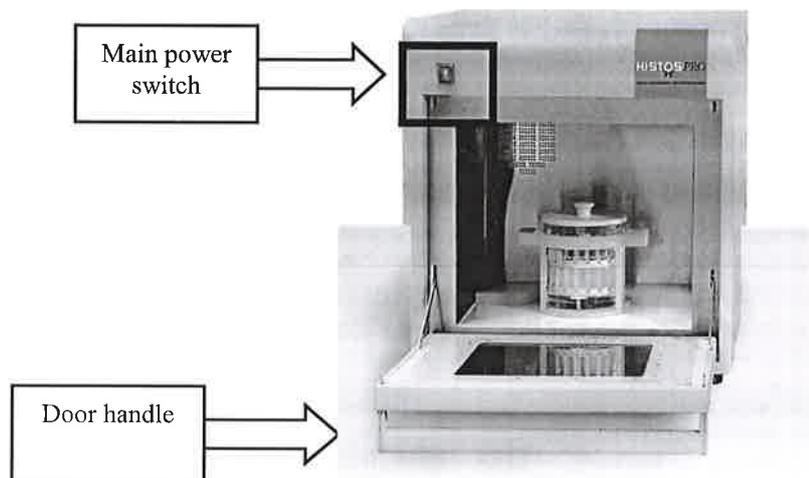
## 2 HISTOSPRO GENERAL DESCRIPTION

### 2.1 PRODUCT OVERVIEW

The picture below shows the front view of the HistosPRO system.

Notice the black door handle; to open the door the handle should be first pushed down. The door opens downwards. As soon as the door handle is pushed down, the microwaves are turned off by 4 safety mechanical switches.

Notice also the main power switch of the HistosPRO.

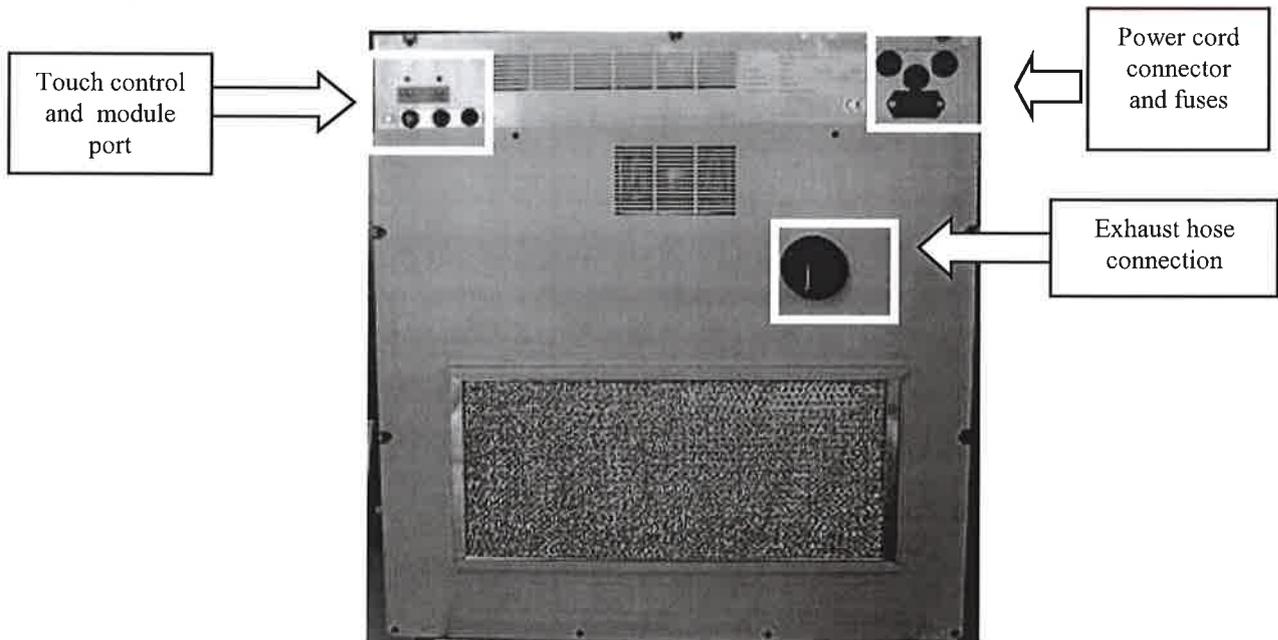


An overview of the back side of HistosPRO is shown in the following picture.

Notice the open connection for the plastic hose (See pag 13) to the exhaust fume extraction.

Up on the left there is the interface port to connect the HistosPRO to the Touch Control TERMINAL-S.

On the right, there is a connection to the power cord and the main fuses holder.

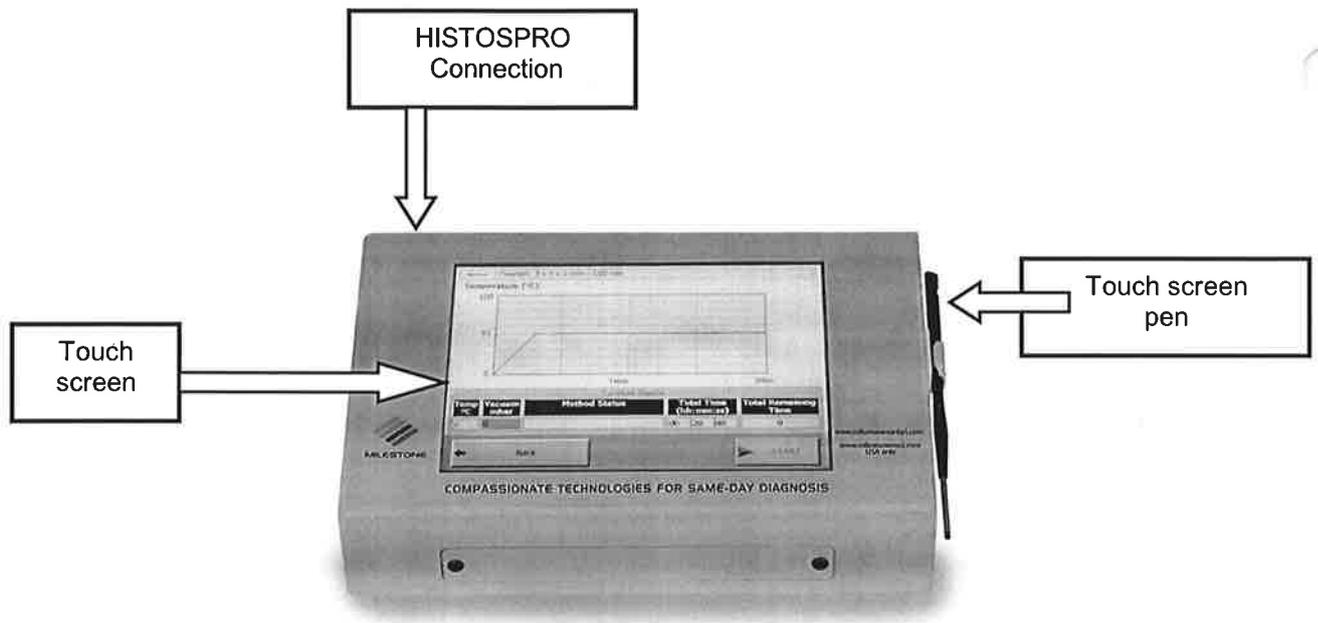


The pictures below show the front and the rear view of the Touch Control TERMINAL-S.

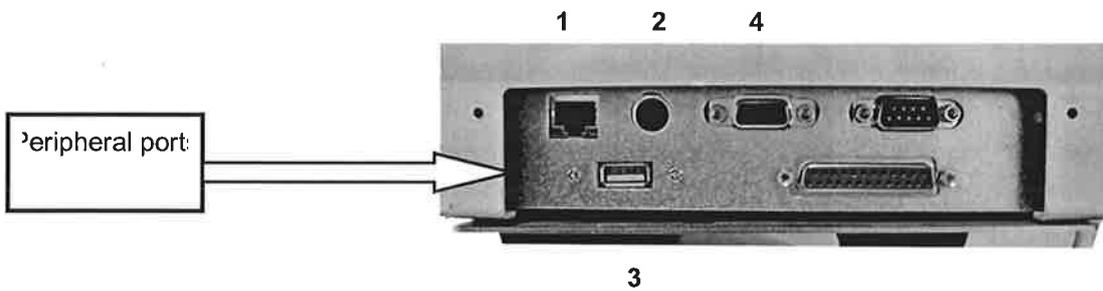
The HistosPRO has dedicated software based on Windows CE.

Use the touch screen pen to select the desired menu.

On the rear of the S terminal are located the interface connector for communication with the HitosPRO unit.



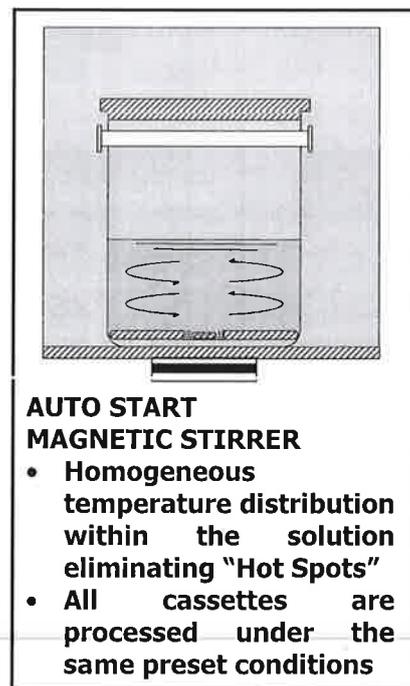
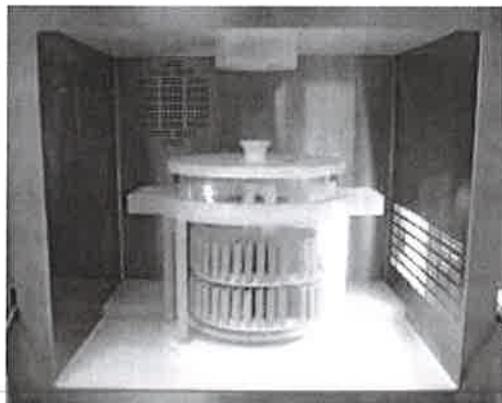
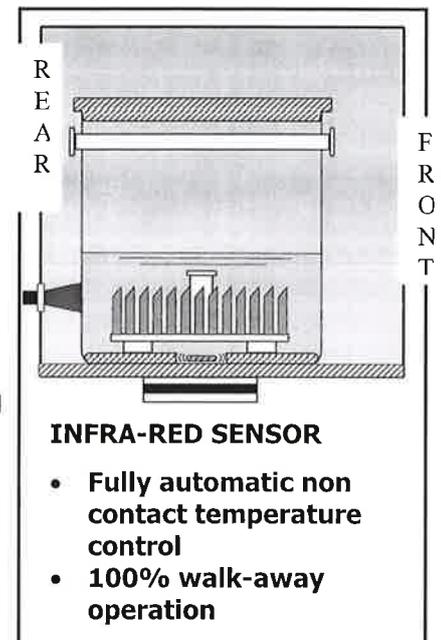
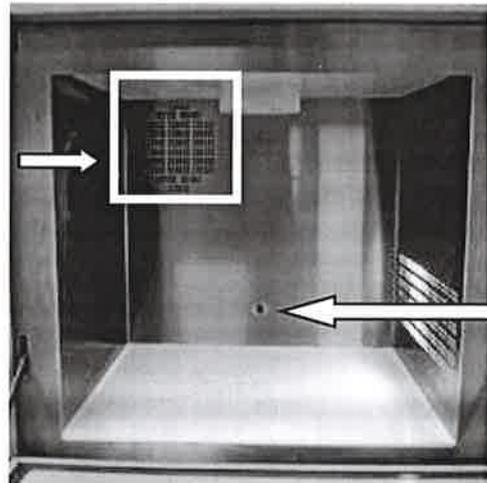
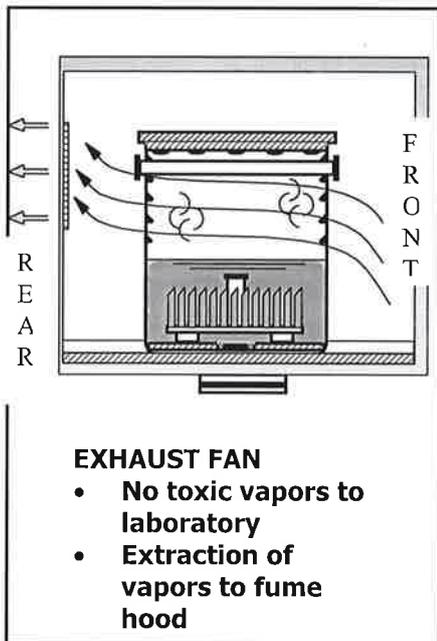
On the bottom panel is located the peripheral ports: LAN/Ethernet device (1), PS2 mouse port (2) Serial an VGA ports (4), n.1 USB 1.1 port (3).  
(Either type and number of these ports may vary without notice.)



## 2.2 TECHNICAL DESCRIPTION

The picture below shows the internal cavity of the HISTOSPRO.

The HISTOSPRO is neither a kitchen type nor a commercially modified kitchen type microwave unit, it is a rugged, heavy duty professional system, designed to guarantee many years of trouble free and safe operation.



## 2.3 TECHNICAL SPECIFICATIONS

---

The technical specifications for the main components of the HISTOSPRO system are described in the following sections.

### 2.3.1 MICROWAVE UNIT

Microwave Power:	Max 800 Watt.					
Power Emission:	The Power Emission (Pulse Width) is controlled by the HISTOSPRO software. The microwave power output is regulated in 10 Watt increments. Control of microwave power is made by modification of the In and Out phase of the Magnetron.					
Dimensions :	cm	inches	cm	inches	cm	inches
Microwave unit :	Width : 51	20	Depth : 69.5	27.3	Height : 58	22.8
Cavity :	Width : 38	14.9	Depth : 31.5	12.4	Height : 33.5	13.2
Weight :	55 Kg (121 lbs)					
Power supply :	230 V ; 50 Hz, 8A (P/N 584825) 115 V; 50 Hz , 16A (P/N 584835) 230 V; 60 Hz, 8A (P/N 584828)					
Sensors :	Infrared temperature sensor					

### 2.3.2 TOUCH CONTROL TERMINAL S

Characteristic:	TK-WIN10CEi-T-LCD color display 300x190 mm Resolution 800x600 pixels, 10.4" Touch screen Mass storage 32Mb RAM 64 MB CPU 300Mhz Windows™ CE.NET
Dimensions:	305 mm x 190 mm x 54 mm (~ 10" x 6" x 2")
Weight :	1 Kg
Programs:	78 pre-stored programs. More than 100 user defined programs.
I/O-Interface:	<u>Interface Plug</u> (RS485) : ("Microwave") for connection to the Microwave Interface Cable.  1 <u>Serial Port</u> ("RS-232"), 1 <u>Serial Port</u> ("RS-422/RS-485") for PC connection used in data management.  1 <u>VGA port</u> , 1or2 <u>USB port 1.1</u> , 1 keyboard and mouse <u>Mini DIN connectorm</u> , <u>Y cable</u> , 1 LAN <u>Ethernet 10/100 Mbps RJ-45</u>

### 3 HISTOSPRO INSTALLATION

#### 3.1 UNPACKING AND CHECKING LIST

Check if your HISTOSPRO part number corresponds to the voltage supply of the laboratory.

<b>HISTOSPRO</b>	(P/N 64110 - 230V, 50Hz)
	(P/N 64112 - 115V, 60Hz)
	(P/N 64111 - 230V, 60Hz)

The HISTOSPRO part number includes the following items:

1. Touch Control TERMINAL S
2. Interface cable (x1)
3. Power cord (x1)
4. Plastic hose + metal cable clamp
5. Operation manual and Handbook of procedures

When unpacking, check that all parts correspond to the packing list included in the shipment. Utmost care must be made during unpacking of the HISTOSPRO to avoid any scratch or damage to the special acid and organic solvent resistant external coating.



ORIGINAL PACKING OF HISTOSPRO

Remove the 4 carton boxes located in the upper part of the main box and keep them apart. They contain accessories which will be used during the installation of the HISTOSPRO. Lift up the main carton box to facilitate the removal of the HISTOSPRO.



The HISTOSPRO comes protected by a plastic bag to avoid problems of moisture infiltration during transportation.



Open now the 4 boxes containing the accessories of the HISTOSPRO.

- **BOX N°1 (Terminal and cables)**

.You will recognize the Touch Control TERMINAL S. The terminal is provided with a touch screen pen.



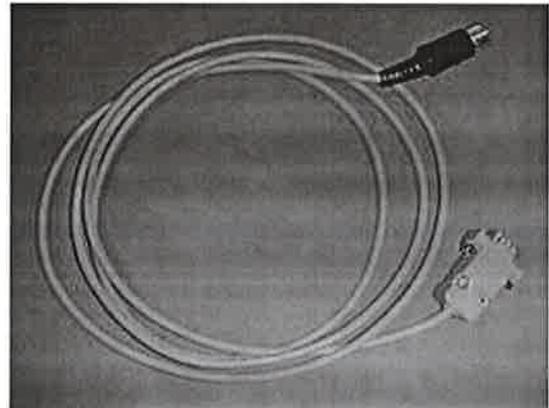
P.N. 64105 (TERMINAL S)

The following pictures show:

- P/N 50036 Power cord (P/N 50391 for units at 115Vac 60Hz)
- P/N 60363 Interface cable to connect the HISTOSPRO to the Touch Control TERMINAL S



P.N. 50036



P.N. 60363

**Note:** Power cord for units at 115Vac 60Hz is P.N. 50391

- **BOX N°2 (Plastic hose and metal cable clamp)**

Notice the black plastic hose 2.5 m (8 ft) long and the metal cable clamp to be used fixing the hose to the exhaust fume pipeline.



- **BOX N°3 (Operation Manual and Handbook of Procedures)**

One book will include the HISTOSPRO Operation Manual and the Handbook of Procedures.



### 3.2 SAFETY PRECAUTIONS

#### WARNING

The weight of the HISTOSPRO is approximately 55 Kg (121 lbs); at least 2 persons should remove the microwave unit from its box and locate it on the bench.

Provide a bench of at least 1m (3 ft-4") length and 70 cm (2ft-4") wide and place the HISTOSPRO on the bench.

A proper location of the HISTOSPRO is next to a fume hood, since the microwave unit should be connected to a fume hood using the hose supplied.

Make sure the unit is not placed against any side surface limiting the air cooling inlet/exhaust.

#### WARNING

**Never install the HISTOSPRO unit under a fume hood!**  
The presence of acids or caustic reagents might contaminate the air flow used for ventilating the electronic components, exposing them to possible corrosion or shorting of circuits.



#### 1 CONNECTING CABLES

**Never** connect or remove cables when power to the unit is switched on, this will avoid risk of damage.

#### 2 METAL PARTS

**Never** introduce metal parts into the microwave chamber. High voltage discharges may cause uncontrolled increases in temperature which could cause damage to the unit.

#### 3 CLEANING CAVITY AND DOOR

**Periodically inspect and clean cavity, door seals and hinges.** Do not use aggressive cleaning materials. If surface is not kept clean, local "hot Spots" are generated with possible corrosion of the metal surface.

**Periodically use a microwave detector to check for microwave leakage from the door seals**

#### 4 FOOD

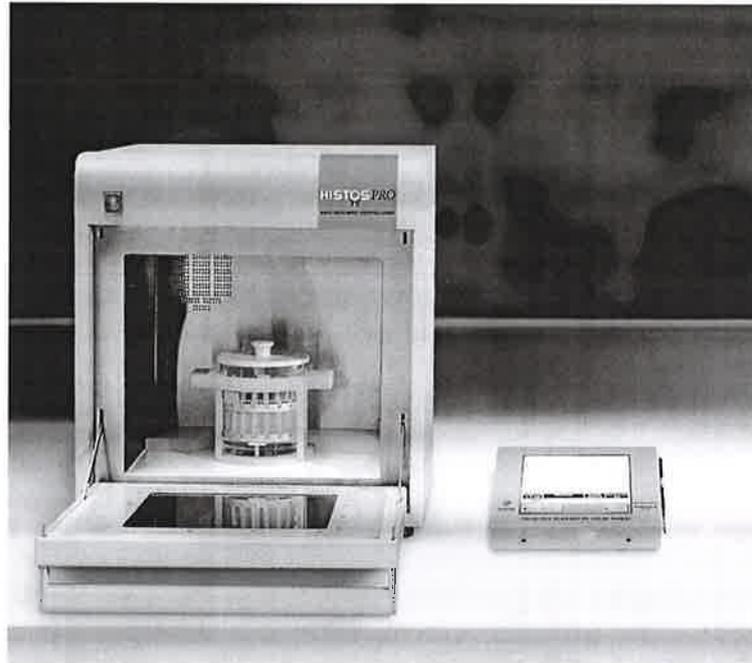
**Never** heat food in a microwave oven used for laboratory procedures.

### 3.3 HISTOSPRO SETUP

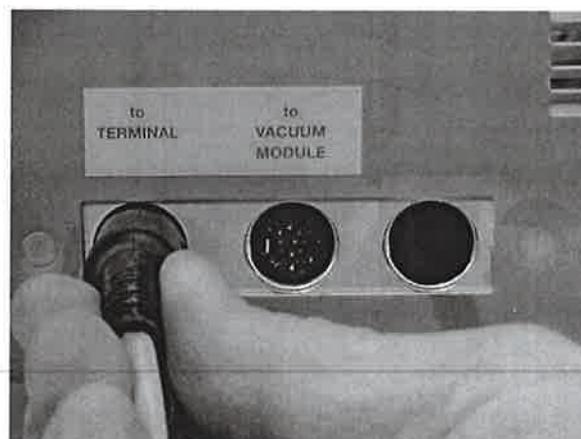
#### WARNING

During the HISTOSPRO SETUP the microwave unit should not be connected to the main power supply

1. Install the Touch Control TERMINAL S either left/right of the HISTOSPRO microwave unit, as shown by the picture below.

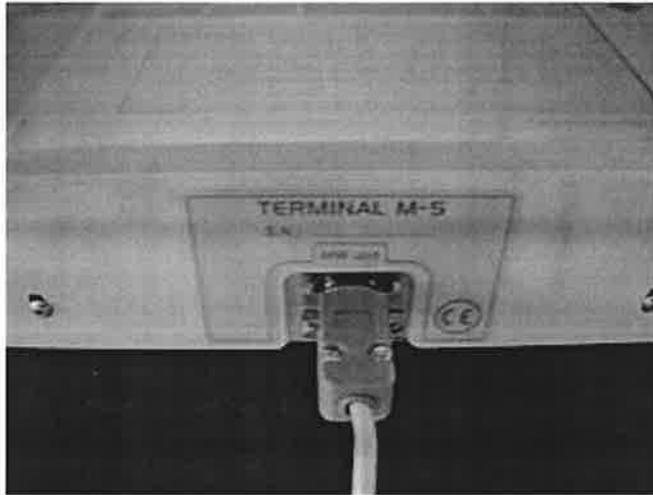


2. Connect the Touch Control TERMINAL S to the HISTOSPRO unit, using the interface cables supplied, controller cable P.N. 60362 and the Touch screen controller cable P.N 60363 as follows. Note that all cables and connectors are color coded for ease of assembly:
  - a. Plug in the 5 pin male connector to the interface port on the back side of the HISTOSPRO unit.



Note: Histos-PRO does not feature vacuum module, hence the connection cable is not supplied along with this unit.

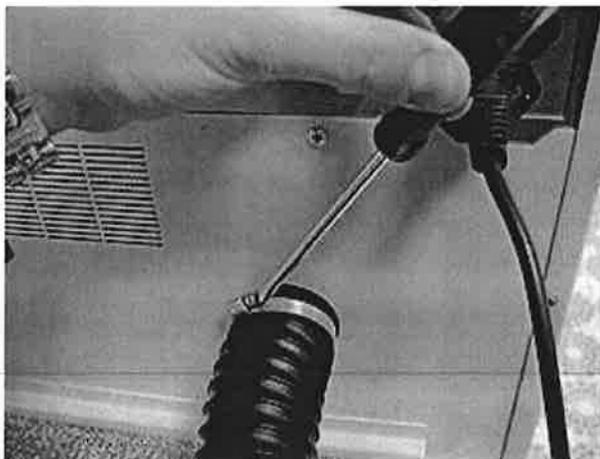
- b. Plug in the 9 pin male connector to the MW-unit port on the rear of the Touch Control TERMINAL S and use a screw driver to fix the cable to the connector.



- a. Connect the black exhaust hose (P/N 50332) to the exhaust outlet located on the back panel of the unit.



- b. Use the metal cable clamp (P.N. 60051) to fix the hose to the exhaust outlet connection. Use a screw driver to tighten the metal cable clamp.



c. The other end of the exhaust hose is normally placed under a fume hood.



### WARNING

**Check if Voltage and Frequency on the back label of the HISTOSPRO corresponds to the power supply outlet in your laboratory.**

### WARNING

Milestone microwaves units must be connected to the power supply ground to guarantee the optimal performance of all the high voltage components.

All Milestone units are assembled to be connected to the ground of the laboratory electrical system.

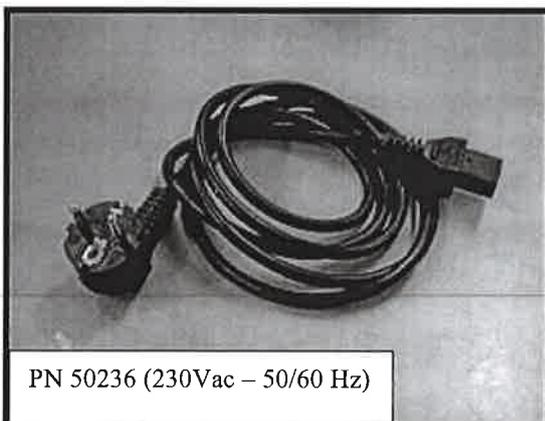
The unit chassis and the following components must be connected to the electrical ground to avoid any electromagnetic interference :

- High Voltage transformer
- Heating transformer
- Magnetron (microwaves generators)
- High Voltage diode and capacitors
- Microwaves diffuser

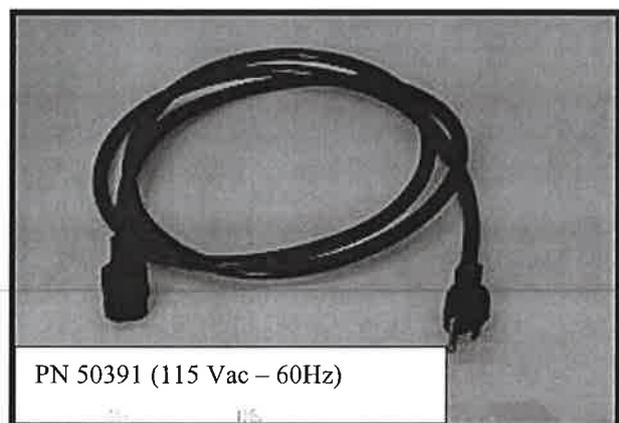
Milestone supplies two versions of the power cable, one for 115Vac and one for 230Vac.

Both versions are provided with ground connection.

During the installation, our distributor will check the compatibility of our cable plugs with the local electrical socket to guarantee the correct ground connection of the unit.



PN 50236 (230Vac – 50/60 Hz)

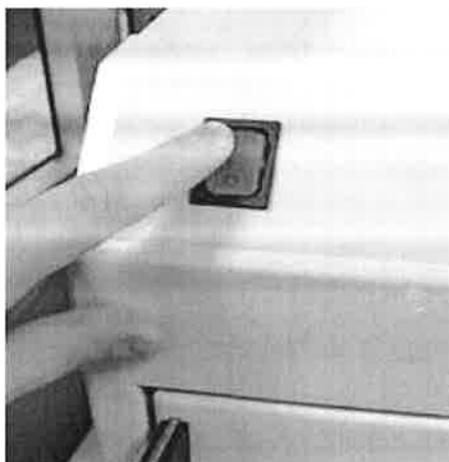


PN 50391 (115 Vac – 60Hz)

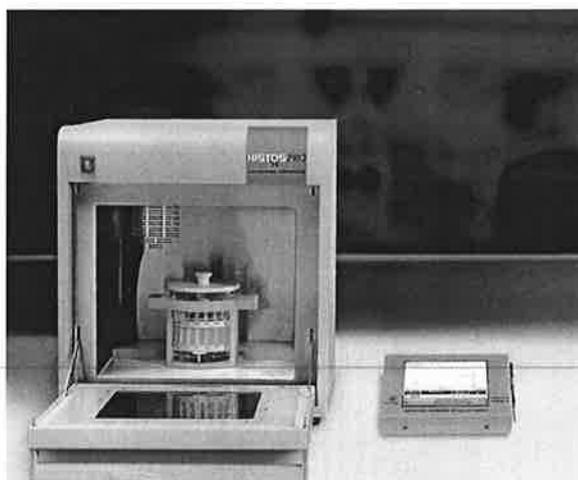
- d. Insert the positioning plate (P/N 60267) in the HISTOSPRO.



- e. Switch the HISTOSPRO on using the main power switch located in the front panel of the microwave unit.



- f. HISTOSPRO is now ready to work.



**4 HISTOSPRO HISTOMODULES AND ACCESSORIES**

**4.1 HISTOPROCESSING**

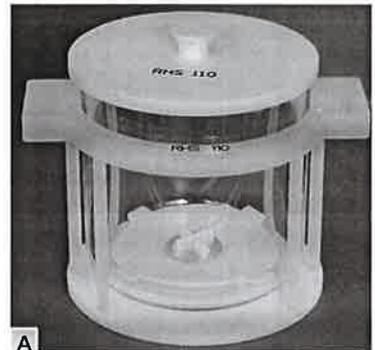
**4.1.2 HISTOSPRO HISTOPROCESSING OF TISSUES UP TO 2/3 mm OF THICKNESS**

**110 Cassettes for HISTOSPRO**

**P/N HISTOSPRO110/2** histomodules kit for up to 110 cassettes that includes:

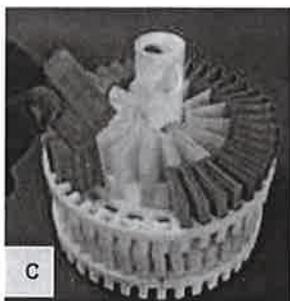
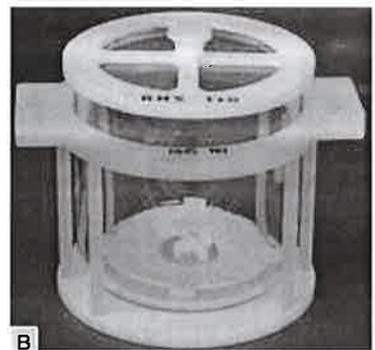
**A Histomodule HISTOSPRO-2 110 for Fixation, JFC, Ethyl alcohol and Isopropanol P/N 584833**

- |    |                         |            |
|----|-------------------------|------------|
| A1 | Glass Container         | P/N 60205T |
| A2 | PTFE ring               | P/N 60269  |
| A3 | Safety carrier          | P/N 60311  |
| A4 | Cover in PTFE           | P/N 60250  |
| A5 | Magnetic stirring cross | P/N 60010  |



**B Histomodule HISTOSPRO-2 110 for Wax P/N 584834**

- |    |                         |            |
|----|-------------------------|------------|
| B1 | Glass Container         | P/N 60205T |
| B2 | Weflon heating disk     | P/N 60259  |
| B3 | Safety carrier          | P/N 60311  |
| B4 | Magnetic stirring cross | P/N 60010  |
| B5 | Cover                   | P/N 60249  |



**C. Rack for 110 cassettes  
P/N 584824**



**D. Positioning Plate  
P/N 60267**



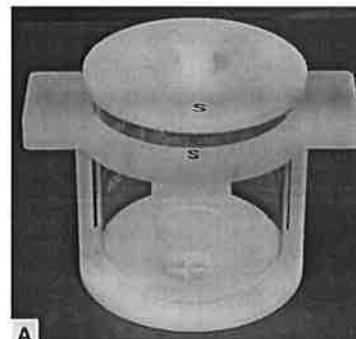
**E. Lifting Tool  
P/N 60202**

## 30 cassettes for HISTOSPRO

**P/N 584851** that includes:

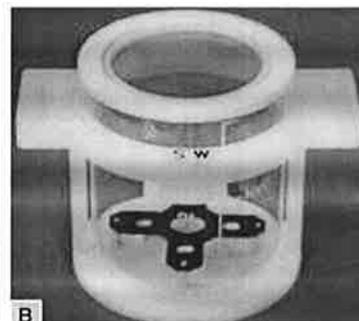
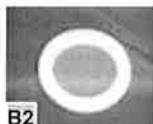
**A Histomodule S30/M for Fixation, JFC,  
Ethyl alcohol and Isopropanol**

- |    |                                       |                   |
|----|---------------------------------------|-------------------|
| A1 | Glass Container 2L                    | <b>P/N 584811</b> |
| A2 | Cover for Histomodule S30/M           | P/N 50304         |
| A3 | Safety carrier for Histomodule S30/M  | P/N 50329         |
| A4 | PTFE base plate for Histomodule S30/M | P/N 50316/S       |
| A5 | Magnetic stirring cross               | P/N 50314         |
|    |                                       | P/N 50226         |



**B Histomodule SW30/M for WAX**

- |    |                                       |                     |
|----|---------------------------------------|---------------------|
| B1 | Container 2L                          | <b>P/N 584812/C</b> |
| B2 | Cover for Histomodule SW30/M          | P/N 50304           |
| B3 | Safety carrier for Histomodule SW30/M | P/N 50325           |
| B4 | Internal Weflon cross Base            | P/N 50316/SW        |
| B5 | Cross Stirrer                         | P/N 60005           |
|    |                                       | P/N 50226           |



**C Rack for 30 cassettes P/N 50334**



**D Positioning Plate P/N 50333**



**NOTE: NOT included (to be ordered apart):**



Rack for 15 cassettes  
P/N 536877

## 4 cassettes for HISTOSPRO

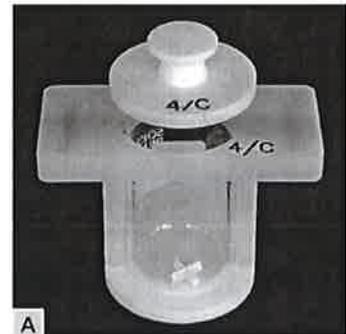
**P/N 584860** that includes:

### A Histomodule 4/C for Fixation, JFC, Ethyl alcohol and Isopropanol

- A1 Glass Container
- A2 Cover
- A3 Safety carrier
- A4 Cross stirrer

**P/N 584855**

- P/N 60578
- P/N 60576
- P/N 60565
- P/N 60579

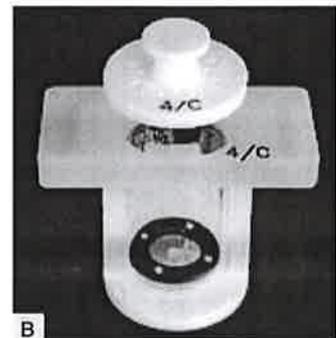
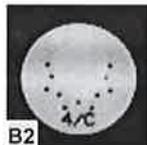


### B Histomodule 4/CWAX for Wax

- B1 Glass Container
- B2 Perforated Cover
- B3 Safety carrier
- B4 Cross stirrer
- B5 Weflon heating ring

**P/N 584856**

- P/N 60578
- P/N 60577
- P/N 60565
- P/N 60579
- P/N 60575



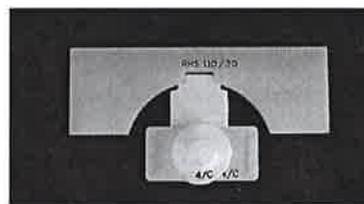
### C Rack for 4 cassettes P/N 60560



**NOTE:** Histomodule 4/C can be used with either positioning plate P/N 50333 or P/N 60267 (not included, to be ordered apart)



Positioning plate P/N 50333



Positioning plate P/N 60267

## 4.2 ANTIGEN RETRIEVAL

### 4.2.1 UP TO 98°C - HISTOMODULE S30/M, 4C AND L/M

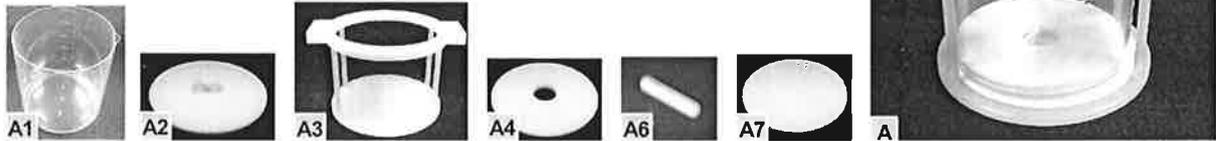
#### Histomodule L/M - up to 120 slides

##### A Histomodule L/M

- A1 Container 5L
- A2 Cover for Histomodule L/M
- A3 Safety carrier for Histomodule L/M
- A4 PTFE base plate for Histomodule L/M
- A6 Magnetic stirring bar
- A7 PTFE bottom disk

##### P/N 584810

- P/N 40159
- P/N 50320
- P/N 50310
- P/N 50193
- P/N 50205
- P/N 50311



#### Histomodule S30/M - up to 40 slides

##### B Histomodule S30/M

- B1 Glass Container 2L
- B2 Cover for Histomodule S30/M
- B3 Safety carrier for Histomodule S30/M
- B4 PTFE base plate for Histomodule S30/M
- B5 Magnetic stirring cross

##### P/N 584811

- P/N 50304
- P/N 50329
- P/N 50316/S
- P/N 50314
- P/N 50226



To be ordered apart (not included):



Microwave transparent rack for  
20 slides P/N 40156/2



Positioning plate  
P/N 50333

## Histomodule 4/C - up to 12 slides

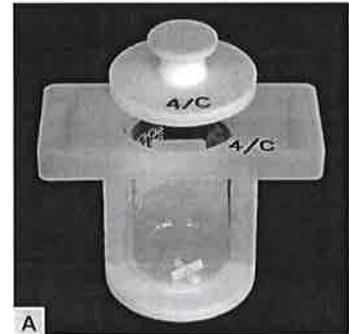
**P/N 584853** that includes:

### A Histomodule 4/C for Antigen Retrieval

- A1 Glass Container
- A2 Cover
- A3 Safety carrier
- A4 Cross stirrer

### P/N 584855

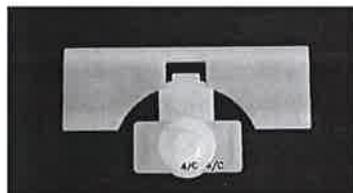
- P/N 60578
- P/N 60576
- P/N 60565
- P/N 60579



### B Rack for 12 slides P/N 60570



**NOTE:** Histomodule 4/C can be used with either positioning plate P/N 50333 or P/N 60267 (not included, to be ordered apart)



Positioning plate P/N 50333



Positioning plate P/N 60267

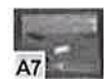
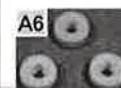
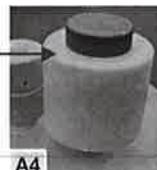
## 4.2.2 UP TO 120°C - GPR-120 KIT FOR UP TO 40 SLIDES

### A Histomodule GPR/B

- A1 Bottom plate
- A2 Glass vessel
- A3 Cover plate
- A4 Static Pressure Valve
- A5 Cooling tube
- A6 Locking nuts
- A7 Stirring bar

### P/N GPR-120KIT/B

- P/N PVP0050
- P/N PVP0009
- P/N PVP0011
- P/N 60107
- P/N 60103
- P/N PVP0013
- P/N 86116



**NOTE:** To be ordered apart (not included):



Microwave transparent rack for 20 slides P/N 40156/2



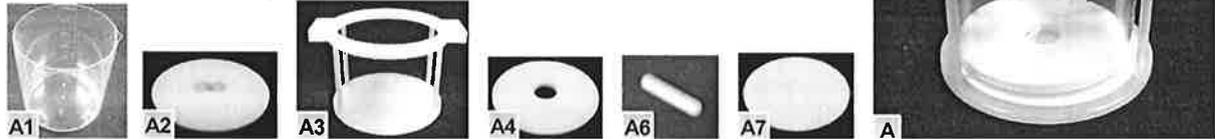
Positioning plate P/N 50333

### 4.3 DECALCIFICATION and FIXATION

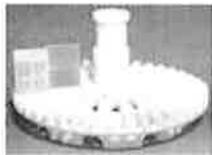
#### 4.3.1 UP TO 60 CASSETTES - HISTOMODULE L/M

##### A Histomodule L/M

- |    |                                     |            |
|----|-------------------------------------|------------|
| A1 | Container 5L                        | P/N 584810 |
| A2 | Cover for Histomodule L/M           | P/N 40159  |
| A3 | Safety carrier for Histomodule L/M  | P/N 50320  |
| A4 | PTFE base plate for Histomodule L/M | P/N 50310  |
| A6 | Magnetic stirring bar               | P/N 50193  |
| A7 | PTFE bottom disk                    | P/N 50205  |
|    |                                     | P/N 50311  |



Accessories NOT included (to be ordered apart):



Rack for 60 cassettes  
P/N 536859



TT Mega positioning plate P/N 50333

#### 4.3.2 UP TO 30 CASSETTES - HISTOMODULE S30/M

##### B Histomodule S30/M

- |    |                                       |             |
|----|---------------------------------------|-------------|
| B1 | Glass Container 2L                    | P/N 584811  |
| B2 | Cover for Histomodule S30/M           | P/N 50304   |
| B3 | Safety carrier for Histomodule S30/M  | P/N 50329   |
| B4 | PTFE base plate for Histomodule S30/M | P/N 50316/S |
| B5 | Magnetic stirring cross               | P/N 50314   |
|    |                                       | P/N 50226   |



Accessories NOT included (to be ordered apart):



Rack for 15 cassettes  
P/N 536877



Rack for 30 cassettes  
P/N 50334



TT Mega positioning plate P/N 50333

**4.3.3 UP TO 4 CASSETTES - HISTOMODULE 4/C**

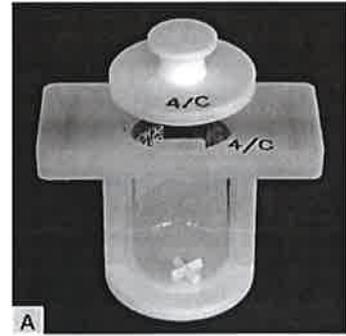
**P/N 584854** that includes:

**A Histomodule 4/C**

- A1 Glass Container
- A2 Cover
- A3 Safety carrier
- A4 Cross stirrer

**P/N 584855**

- P/N 60578
- P/N 60576
- P/N 60565
- P/N 60579



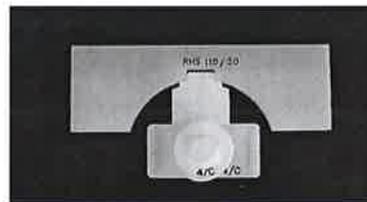
**B Rack for 4 cassettes P/N 60560**



**NOTE:** Histomodule 4/C can be used with either positioning plate P/N 50333 or P/N 60267 (not included, to be ordered apart)



**Positioning plate P/N 50333**



**Positioning plate P/N 60267**

## 4.4 SPECIAL STAINS

### 4.4.1 UP TO 12 SLIDES - HISTOMODULE 4/C

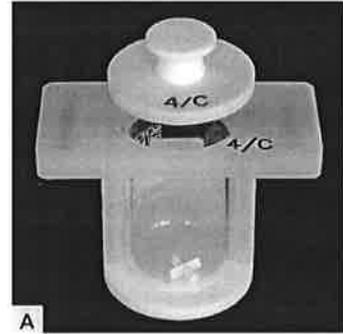
**P/N 584853** that includes:

**A Histomodule 4/C**

- A1 Glass Container
- A2 Cover
- A3 Safety carrier
- A4 Cross stirrer

**P/N 584855**

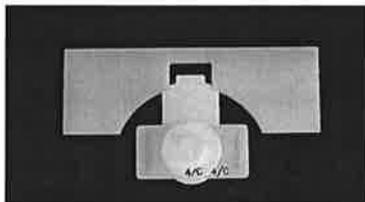
- P/N 60578
- P/N 60576
- P/N 60565
- P/N 60579



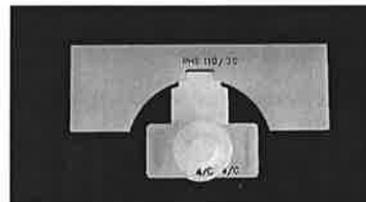
**B Rack for 12 slides P/N 60570**



**NOTE:** Histomodule 4/C can be used with either positioning plate P/N 50333 or P/N 60267 (not included, to be ordered apart)



**Positioning plate P/N 50333**



**Positioning plate P/N 60267**

#### 4.5 SUMMARY TABLE

HISTOMODULE	P/N	APPLICATION
HISTOSPRO-2 110 JFC	584833	<b>histoprocessing of 110 cassettes</b> , for the Fixation, JFC, Ethyl Alcohol and Isopropanol steps.
HISTOSPRO-2 110 WAX	584834	<b>histoprocessing of 110 cassettes</b> , for the WAX step.
HISTOMODULE S30/M	584811	High Temperature Procedure, Decalcification, Fixation and <b>histoprocessing up to 30 cassettes</b> for the JFC, ethanol, isopropanol steps.
HISTOMODULE S30W/M	584812/C	<b>histoprocessing up to 30 cassettes</b> for the WAX step.
HISTOMODULE L/M	584810	High Temperature Procedure, Decalcification, Fixation of up to 60 cassettes or 120 slides
GPR-120	GPR-120KIT/B	High Temperature Procedure up to 120°C for 40 slides maximum
HISTOMODULE 4/C	584855	<b>histoprocessing</b> , decalcification, fixation up to 4 cassettes, High Temperature procedures and Special stains up to 12 slides
HISTOMODULE 4/C WAX	584856	<b>histoprocessing for WAX</b> up to 4 cassettes
TT Mega Positioning plate	50333	Positioning plate for P/N 584811, 584812/C, 584810, GPR-120KIT, 584855, 584856
Rack for 60 cassettes	536859	Decalcification, Fixation
Rack for 15 cassettes	536877	Histoprocessing, decalcification, fixation
Rack for 4 cassettes	60560	Histoprocessing, decalcification, fixation
Rack for 30 cassettes	50334	Histoprocessing, decalcification, fixation
Rack for 20 slides	40156/2	High Temperature Procedure
Rack for 12 slides	60570	Special Stains
Rack for 110 cassette	584824	Histoprocessing, decalcification, fixation

## 5 OPERATING WITH THE HISTOSPRO

The HISTOSPRO is controlled by the Touch Control TERMINAL S, which is a Windows CE based "Touch Screen" computer.

The Touch Control has 30 pre-stored programs for histoprocessing and also 23 pre-stored programs for 5 different applications: High Temperature Procedures, gross Hardening, Decalcification, Fixation and Special Stains.

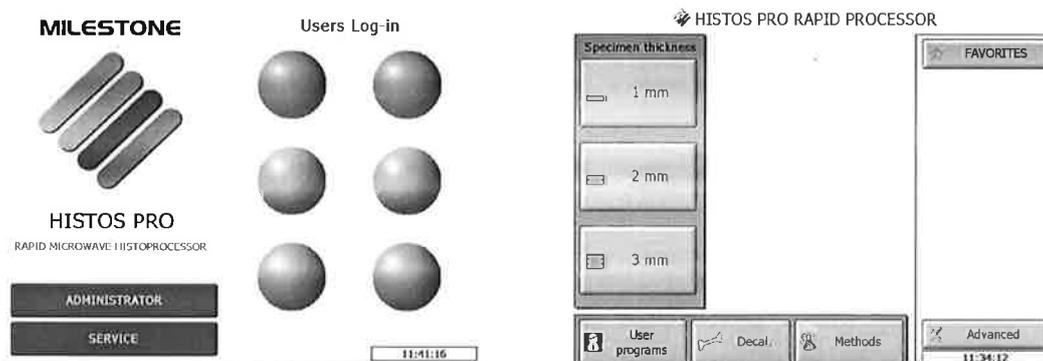
It is also possible to store hundreds of customer defined programs.

The **power output is automatically controlled** by a PID (Proportional Integrative Derivative) system, which allows the operator to set up the desired parameters (Time and Temperature) by simply drawing a curve. If a pre-stored program is used, it is only required to adjust the time of the procedure in relation to the specifications of the application.

The HISTOSPRO allows the user to gain consistency and reproducibility of high quality results thanks to the working procedures based on the concept of **TIME at TEMPERATURE**. The unit will always reproduce the same conditions of temperature in the set times, by automatically adjusting the power level.

The following section will show how to create, store, modify and run a program with the touch Control terminal.

### 5.1 TOUCH CONTROL



At the switch-on of the system, the user is required to log-in by touching the icon then entering the appropriate password. Once done the screen on the right will appear.

This picture shows the main menu of the Touch Control TERMINAL S. It is possible to operate the unit by simply touching the buttons on the screen.

HISTOSPRO is non-vacuum HISTOPROCESSING Microwave unit.

By pressing the **SPECIMEN THICKNESS** buttons (1-2-3mm) the user access to all the stored processing programs for up to 110 cassettes accordingly to the samples' thickness going to be processed.

**User Programs:** area where prepare and store users' customized protocols

**Decal.:** area where are stored all the programs listed by temperature and reagent to be used for decalcination.

**Methods** is the button to access all other stored application programs.

**Advanced** is the button to access all the settings of the system. Some of them are protected by passwords, accessible by authorized service personnel only.

Under this button is also possible to **LOG OUT** to the main screen (see above). Once logged out by pressing another button select one of three different access level: as User (up to 6 users), as Administrator or Service. For Administrator and Service access the password is needed. Ask Milestone for that.

Under this button is present the **Saved working session** button to access the processing done and previously saved. Enabled users and the administrator only can view, download and print the processing saved.

Only as Administrator or Service is possible set up and manage new users.

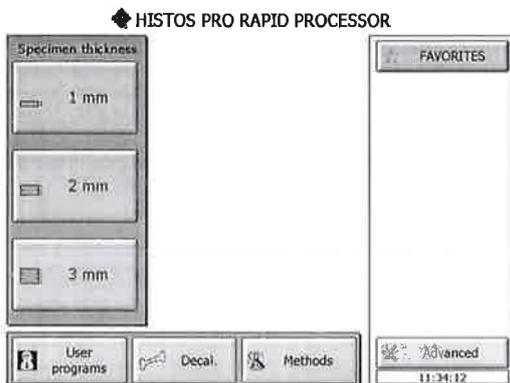
**Favorites** is the button to access to the most used protocols (previously decided by the administrator).

**5.2 Running a program**

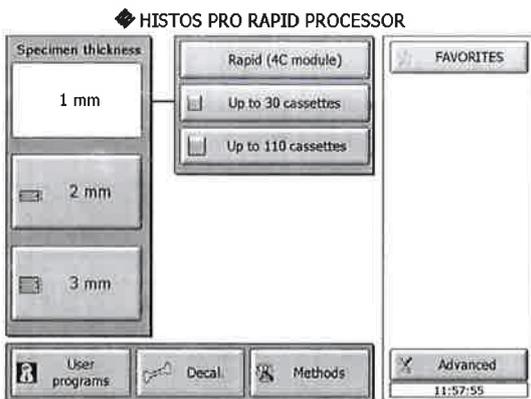
Notice: pour the wax in the appropriate wax module and place it in heated oven. Histos-PRO uses paraffin already liquid during the impregnation step.

At the turning ON of the instrument, select the thickness icon of interest (eg 1mm) on the touch screen.

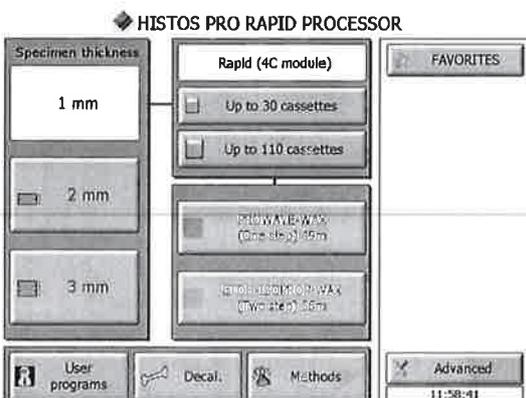
The HISTOS-PRO allow to process samples up to 3 mm without because it works without vacuum.



Select the processing module capacity (4C, 30 or 110 cassette rack configuration) from the screen below.



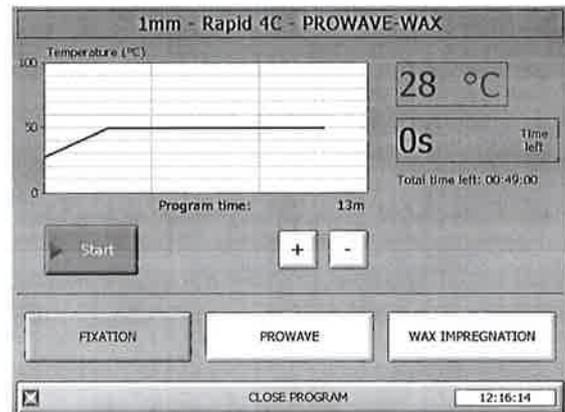
Now select the type of histoprocessing reagent to be used, as indicated, for example ProWAVE - Wax. (For thickness of 3mm or above, JFC-Iso-Wax is also available for processing of **fatty tissue**.)



Press the icon to load the preset processing curves. (The system asks you the n. of cassette going to be processed only if the this option is checked, see chapter 5.9, reagent management)

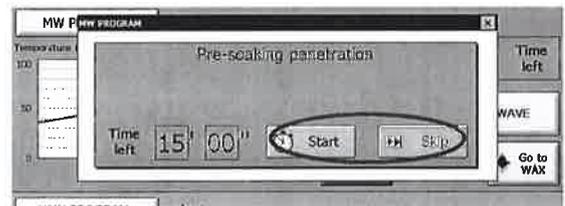
The curve is now displayed and the **FIXATION** step appears highlighted in blue.

NB: If the Fixation step is not required, bypass it by simply pressing the closed icon (ProWAVE or JFC or Ethanol) on the right.



Press the **FIXATION** icon and the following screen appears. In case of fresh tissue samples require the Pre-soaking step (this step is ran without microwaves). Load and place in the unit the samples submerged into its fixative and select **START**.

The pre-soaking time is calculated accordingly the tissue thickness.



**Fresh tissue advised pre-soaking time:**

- 1mm: 15 min
- 2mm: 25min
- 3mm: 35min
- 4mm: 50min
- 5mm: 60min

At the end of counting backward HISTOS automatically start the MW fixation step. It is also possible to modify (increase or reduce) the countdown time by touching the relative box

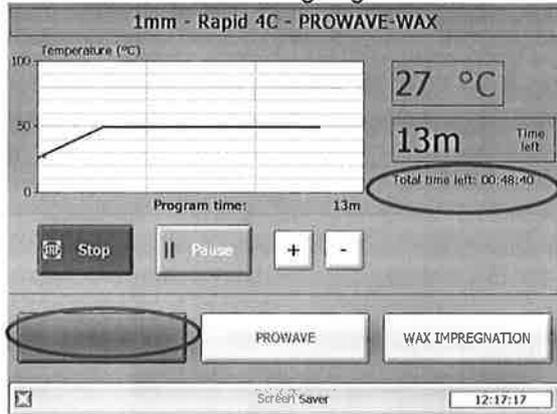
If the samples are already pre-soaked select skip and proceed with the next step.

It is possible Disable the presoaking pop-up in "User access section" of the "Advanced function "

Place the histomodules in the MW unit and Press the **START** icon (If the FIXATION step is required).

The unit will check all the parameters and afterwards it will automatically run the fixation followings the preset curve.

Icon **RUNNING** is flashing in green now.



By pressing the "Plus" and "minus" boxes you will also directly increase or decrease time for the Time at temperature step. This allows flexibility to create shorter or longer processing times, if required.

While the cycle is running the user can **STOP**, **PAUSE** the processing.

**NOTE:** The red circle shows that **TOTAL** Processing remaining time

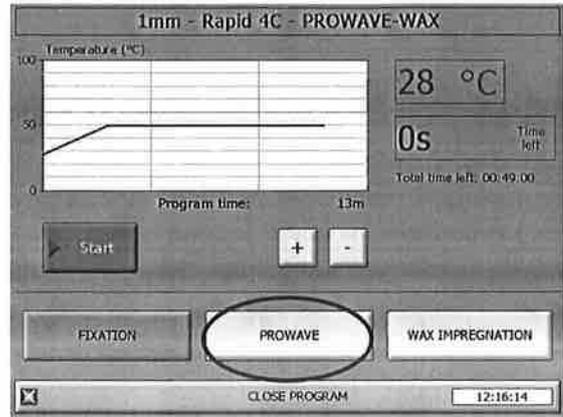
On completion of the program an "**End of program**" icon will appear as well as a loud audible alarm



Press the **STOP AUDIO ALARM** icon to stop it. The screen returns to the graphical results.

Transfer the rack in the histomodules with the one containing the next reagent (ProWAVE or JFC or Ethanol) and go to the next step in the program by pressing the **ProWAVE** or **JFC** or **Ethanol** icon.

The step completed is displayed as inactive



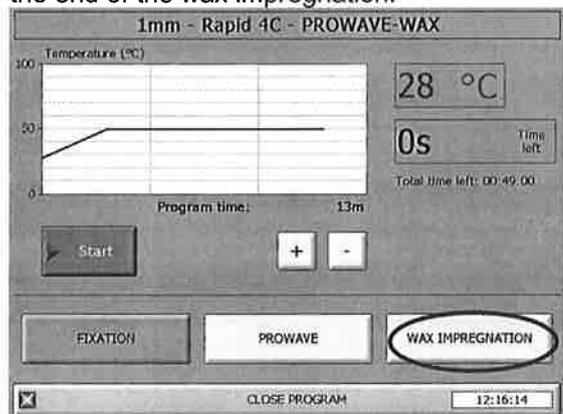
Now the following on screen warning remind to perform the rinsing steps after fixation (It is possible Disable this pop-up in "User access section" of the "Advanced function "). Press Done or Skip to proceed.



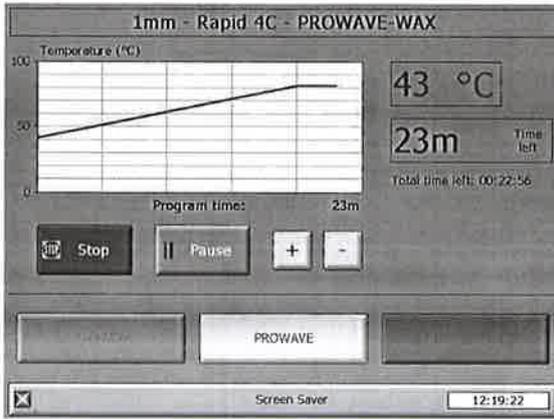
By Pressing **START** and the next processing step will run automatically

On completion of the **Dehydration/Clearing** program an end of program icon will appear as well as a loud audible alarm

Now press **WAX impregnation** icon making the unit able to load and prepare the Wax impregnation curve. If you press **SAVE program** the unit saves the steps done until now. If not the user will be able to save **ALL** at the end of the wax impregnation.



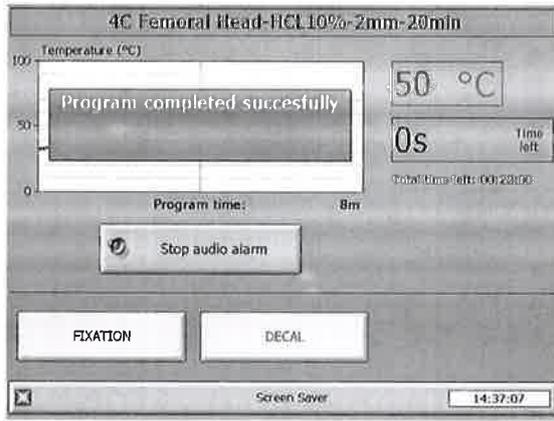
Drip it quickly and transfer the rack from the Dehydration /Clearing solution and submerge it in the Wax histomodules with molten wax (with black plate to keep the wax liquid).



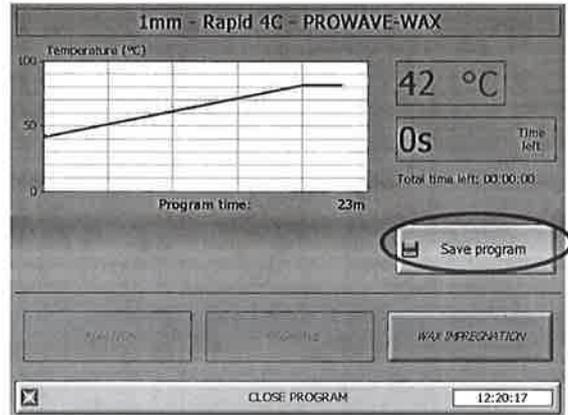
The graphics screen opens and shows the program details. Select the **START** icon and the program will automatically run as above.

On completion of the **Impregnation with Wax** program an "End of program" icon appears with a loud audible alarm.

Press the "STOP AUDIO ALARM" icon to stop it.



By pressing the **Save program** icon the unit saves all the processing done in a unique file.

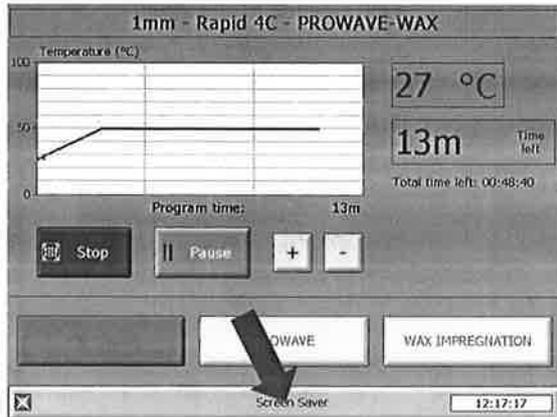


By pressing the **Save program** icon allows the operator to store the FILE NAME to be assigned using the alphanumeric touch pad. On completion of details entering press the **ENTER** icon.



### SCREENSAVER

During every step of the processing, if you press "Screensaver"

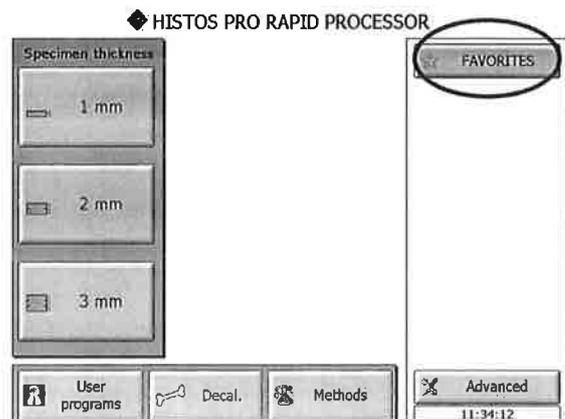


The following black screen with the residual time up to the end of the processing step will appear

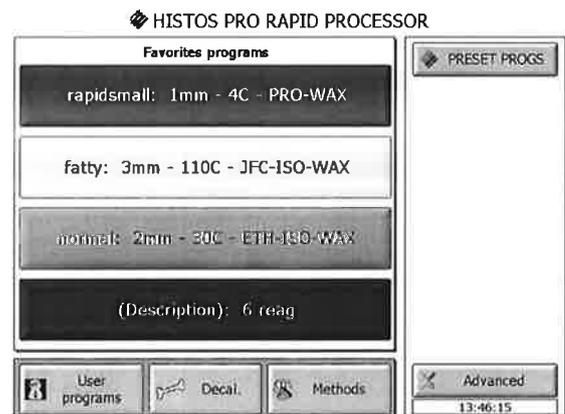


### FAVORITE PROGRAMS

It is possible to select a different type of selection of the process, from the main screen press the FAVOURITE icon



and the following screen will appears;



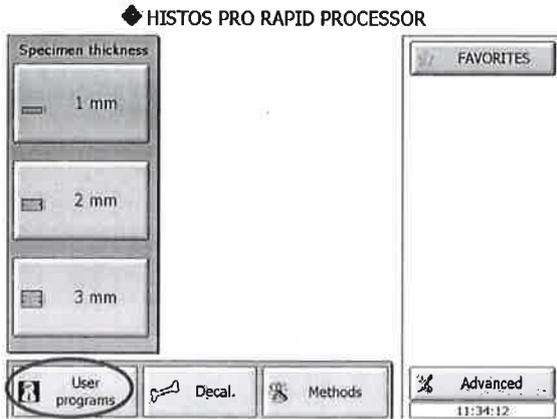
Select from the list the process to run and press the relative icon to load the process.

NB: It is possible modify the Favorite processes in "Modify favorite display" by pressing the "Advanced function " button present on the main screen (see section 5.5 of this manual).

## 5.2 MODIFY AND CREATE HISTOS PROCESSING PROGRAMS

To modify or create an HISTOS program it is recommended to recall a prestored program, rename it, make the necessary changes and then save the program. Proceed as follows:

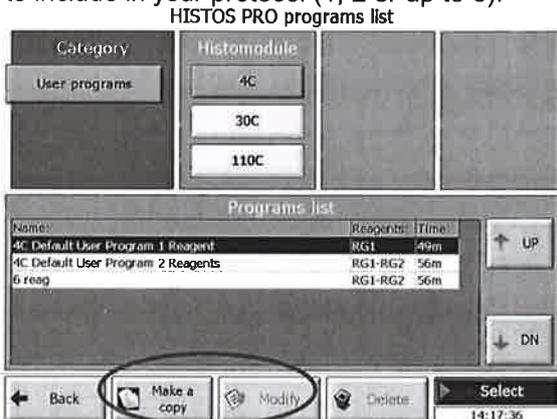
From the touch screen select the **User Program**



Select the type of histomodule used.



Select the program that relates to the appropriate numbers of reagents do you want to include in your protocol (1, 2 or up to 6).



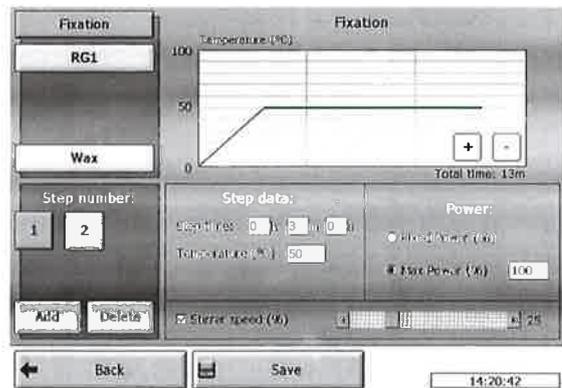
Press the **Make a Copy** or **Modify** (customized protocol only) icon.

As the pre-stored programs are protected, it is necessary to change the filename, to avoid any

confusion. Use the Alphanumeric pad to enter the new program name (up to 30 spaces are available), then press the **ENTER** icon.

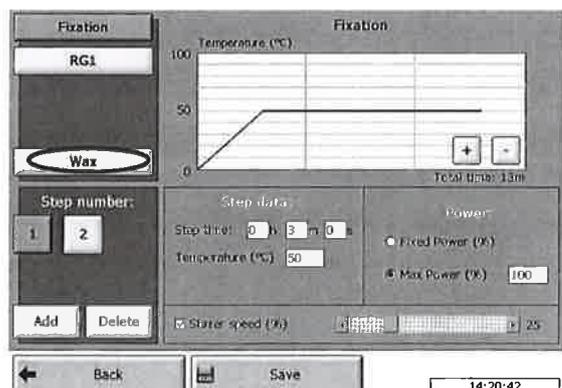


Now the various steps available for modification will appear as indicated below.



From the screen select the method to be modified, using the example of **wax impregnation**.

By selecting **Wax**, the following screen appears.

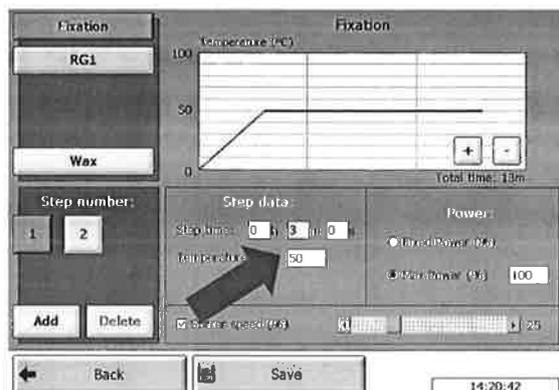


Select the step number to be modified, which is the last step of the method.

**NOTE: It is recommended to don't modify the first ramping step**

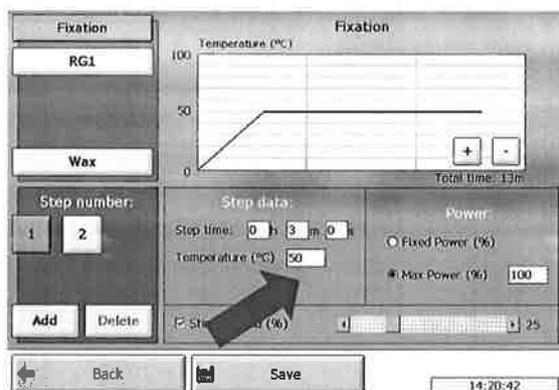
Options for modifying the step chosen include:

**TIME:** select the time display box, indicated below



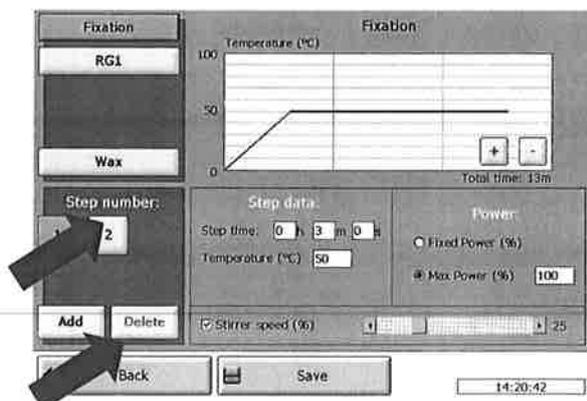
Once the time is modified, we can now change (if required):

**TEMPERATURE:** On the screen select the **Temp** box, as indicated below.



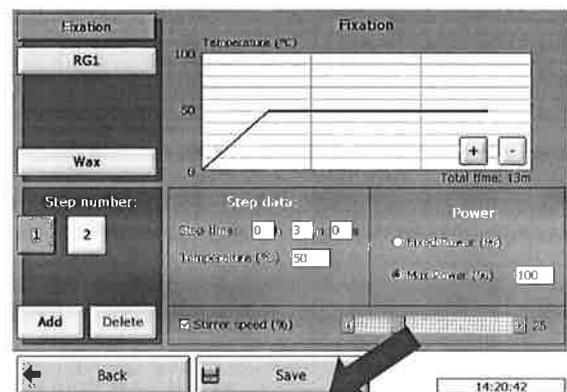
Once the temperature is modified, we can change (if required):

**Delete Step:** Is used to completely remove all values set for the selected step.



**NOTE:** Max power at 100% means that the PID automatically control the magnetron power output (is recommended).

On completion of the necessary changes to any program, select the **SAVE** icon, as indicated below.



By pressing the **SAVE** icon you go back to the Program selection screen, where you will observe the **NEW** program added to the list of pre-stored programs

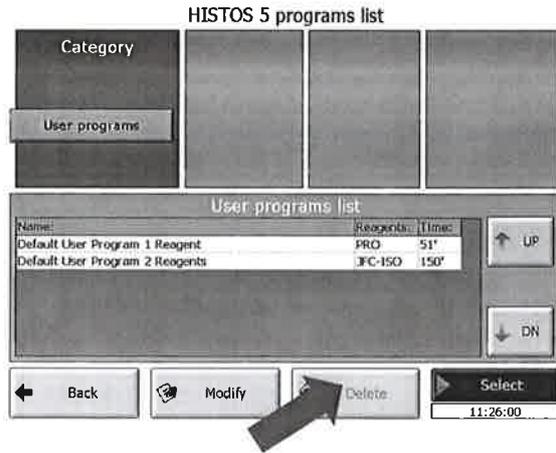


You are now ready to use your new program.

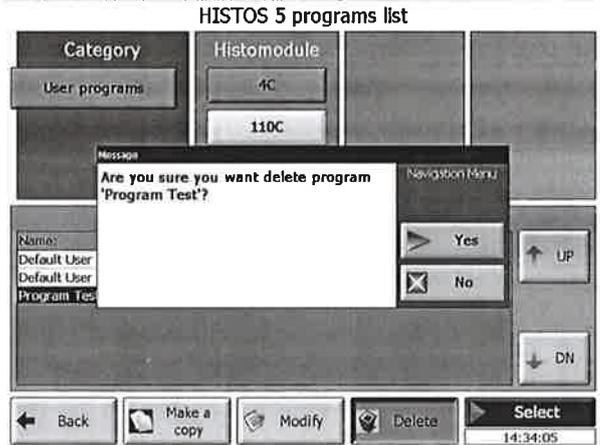
### 5.3 DELETE MODIFIED PROGRAMS

Programs that have been modified can be deleted by following the instructions indicated below.

Select the program to be deleted by pressing its button and press **Delete** icon to remove it.

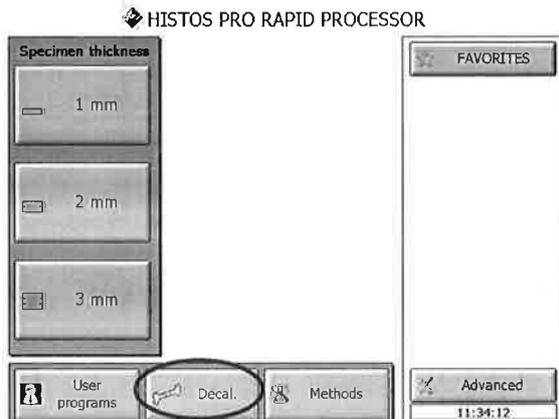


A dialogue box will appear asking for confirmation to delete this program. Select Yes if you wish to delete that program.

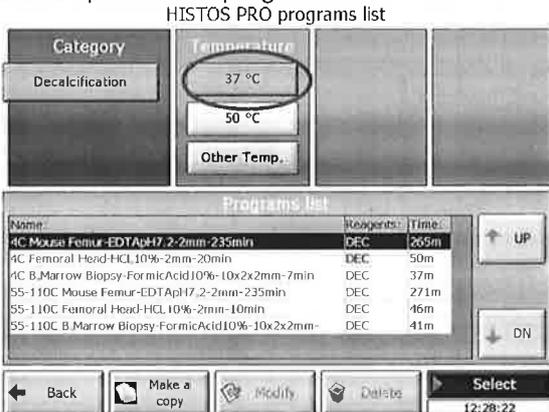


### 5.4 RUNNING DECALCIFICATION PROGRAM

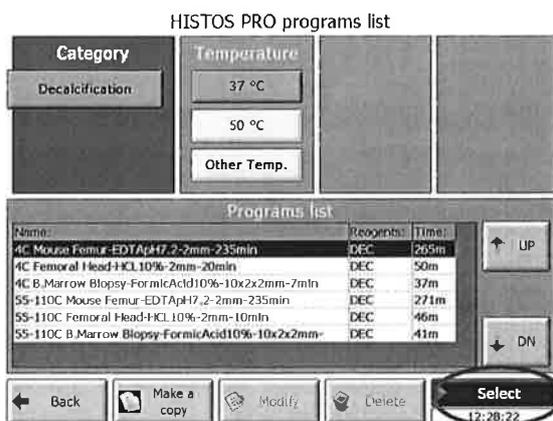
Select the **Decal** icon on the touch screen.



The following screen will appear, select now the temperature of program to run.



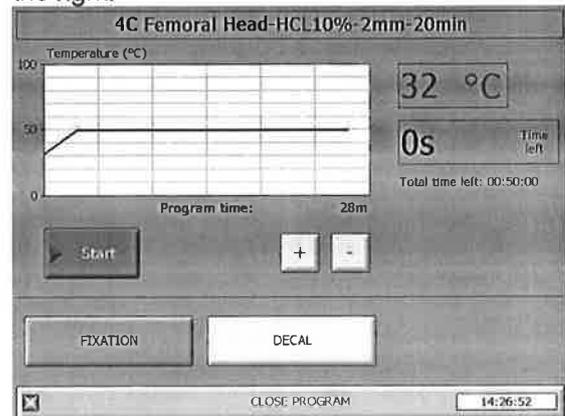
Now the list bar below shows the Histomodule (accessory) the decal reagent and volume to be used respectively. The processing time is also available and it is comprehensive of the fixation step.



Select the program and touch the icon button **Select** on the right-bottom of the screen to open the curves.

The curve is now displayed and the **FIXATION** step appears highlighted in blue.

NB: If the Fixation step is not required, bypass it by simply pressing the closed icon Decal on the right.



By Pressing **START** and the processing step will run automatically

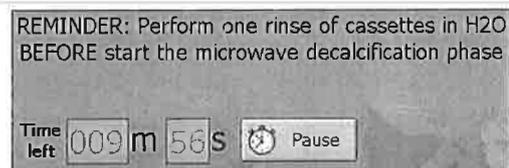
On completion of the Fixation following icon will appear as well as a loud audible alarm



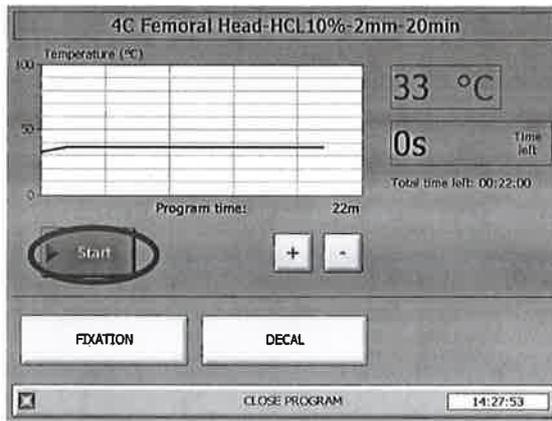
Press the **STOP AUDIO ALARM** icon to stop it. The screen returns to the graphical results.

Transfer the rack in the histomodule with the one containing the Decal reagent and go to the next step in the program by pressing the **Decal** icon. The step completed is displayed as inactive

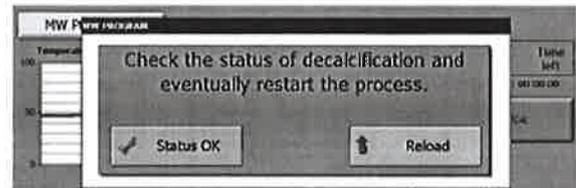
Now the following on screen warning remind to perform the rinsing steps in running water after fixation. Press Start the countdown or Skip to proceed



The curve is now displayed and the **DECAL** step appears highlighted in blue. Pressing **START** and the processing step will run automatically



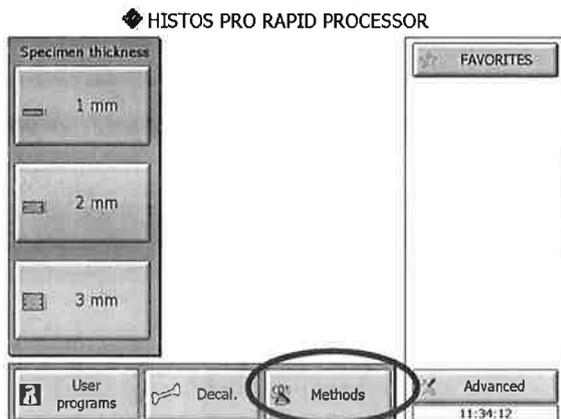
On completion of the Decal step the following on screen warning remind to "Check the status of the decalcification of the samples and eventually restart the process". Press **STATUS OK**, or if needed **Reload** to repeat the decal step



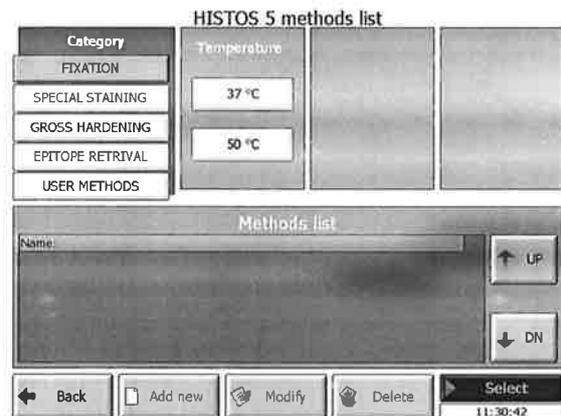
Please note that it is possible to disable these reminder messages in "User Access Management" of the "Advanced function " (see section 5.5 of this manual)

5.5 MODIFY AND CREATE OTHER APPLICATION PROGRAMS

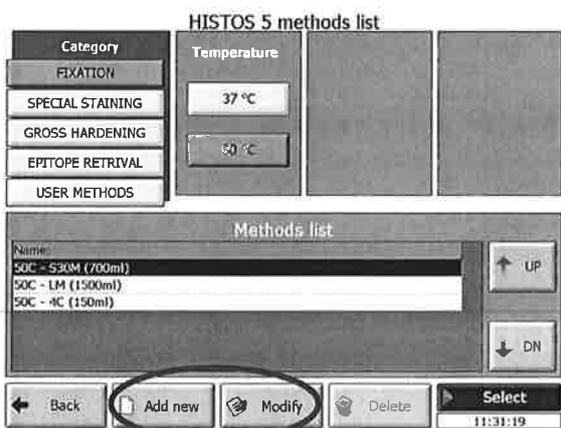
From the screen of the Touch Control, press on the button **METHODS**.



Select the Application button required by touching it directly (eg. FIXATION as shown below).

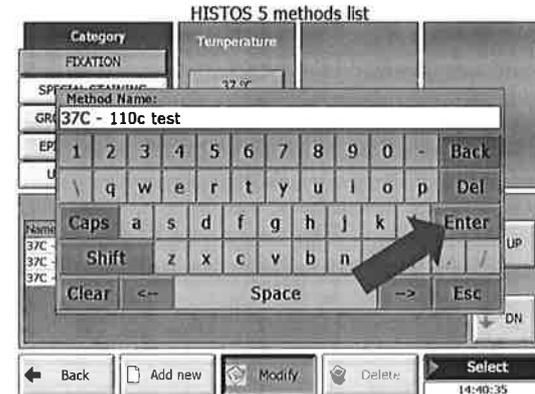


By touching the appropriate button, select the temperature of preset program to modify. Now the list bar below shows the temperature, the Histomodule (accessory) and the reagent volume to be used respectively. Select the program and

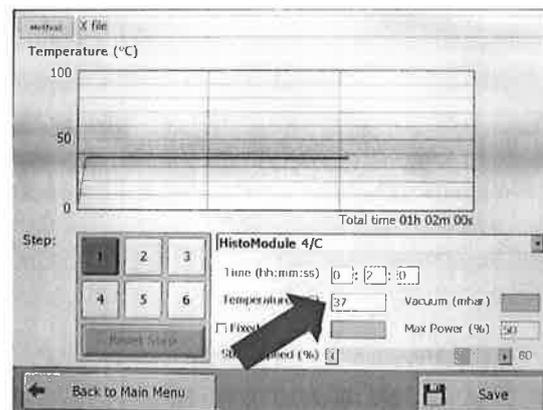


touch the icon button **ADD NEW / MODIFY** on the bottom of the screen.

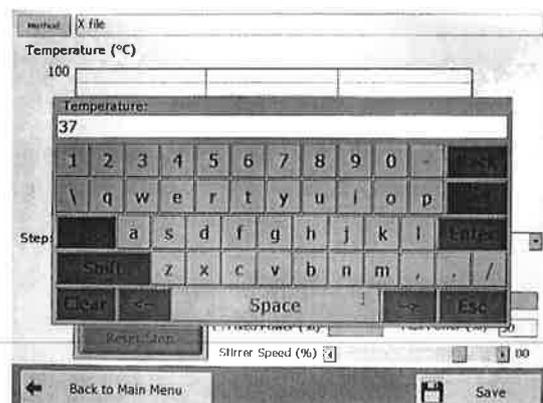
The operator is required to change the name of the program, otherwise the system will not allow proceeding and overwriting a different program to the existing one. Press the ENTER icon.



The following screen will appear. This window allows modification of temperature and time of each step of the stored programs as follows: select the step to be modified.



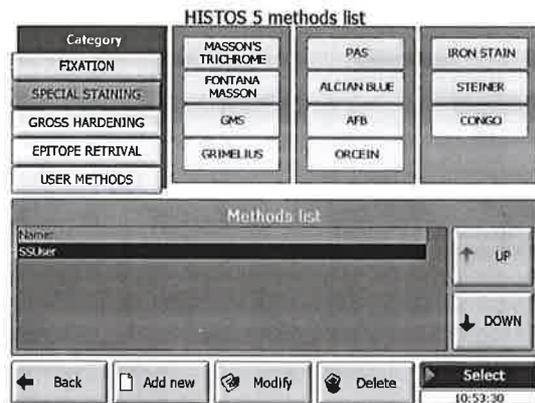
Select the temperature or the time values to be modified.



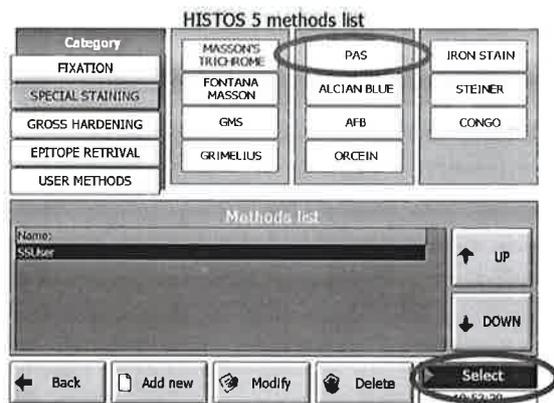
Select the Histomodule (accessory) in use. Adjust the microwave power level. Adjust the stirring level desired. Touch **SAVE** to store the program.

### 5.6 RUN SPECIAL STAINING

Press METHODS from the main screen of the Touch Control, afterwards press the SPECIAL STAINING button.



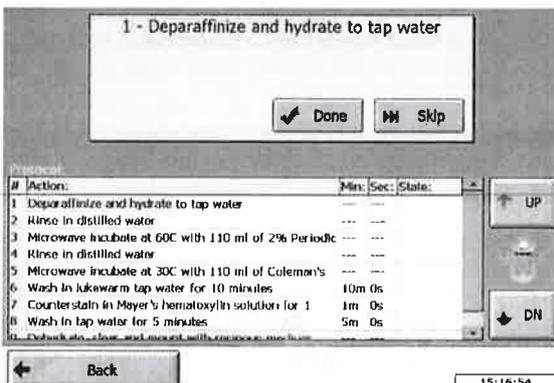
Select the Staining button required by touching it directly (eg. PAS as shown below). Touch the button **SELECT** on the bottom of the screen.



At this stage, follow the steps displayed on the screen.

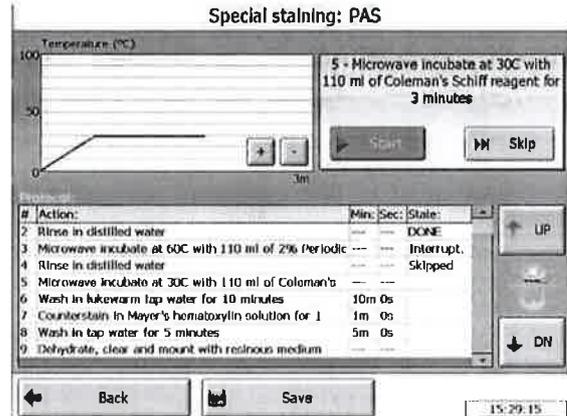
These steps also include rinsings, incubation etc.. that must be done outside the unit, then without MWs.

By pressing the button DONE or SKIP the user are free to decide which step they want to do accordingly to their method.



The picture below is referring to a MWs incubation step.

Press START to run the curve or SKIP going to the following step without running the present one.



However we remember that once the processing has been saved, the file will show the steps either done, interrupted or not done.

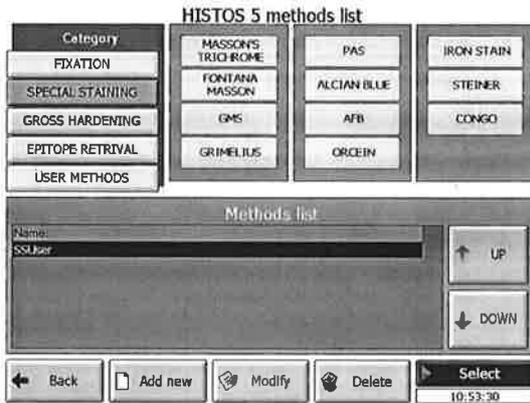
At the end of the processing, press the button SAVE to store the run.



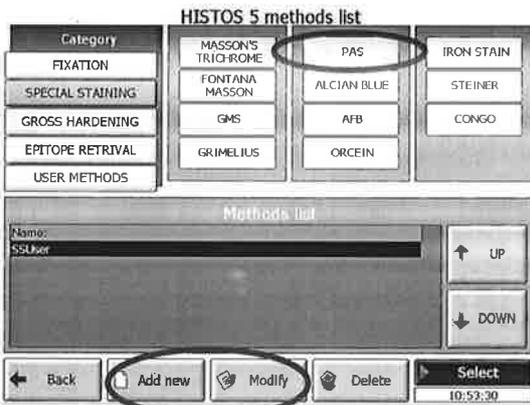
Under the button "View saved processing" from the Advanced screen, the user can view, export or delete (if allowed to) this file.

### 5.7 MODIFY SPECIAL STAINING

From the screen of the Touch Control, press on the button SPECIAL STAINING.



Select the Staining button required by touching it directly (eg. PAS as shown below). Touch the button **ADD NEW / MODIFY** on the bottom of the screen.



The operator is required to insert/change the name of the program



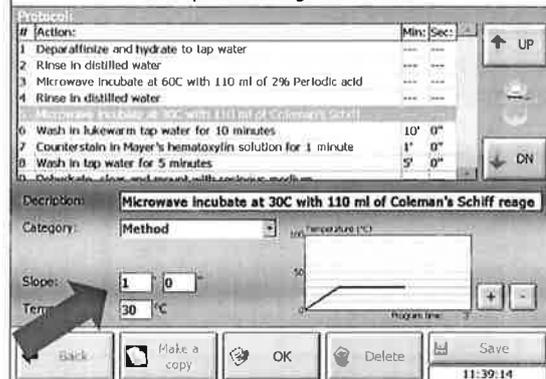
Select the icon to add or modify and press **ADD NEW** or **MODIFY** button. Now is possible to change the **description** and select the category of the step: **Simple, Timer or Method**.

Edit special staining: test



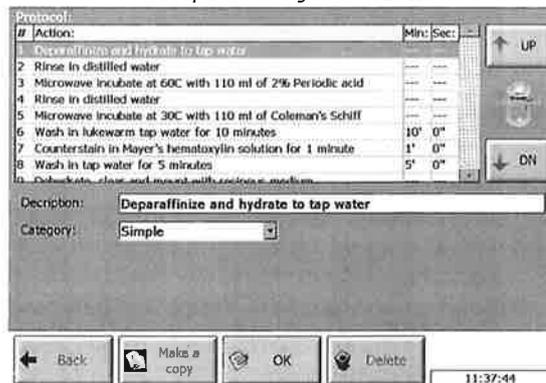
For the category **METHOD** is possible by touching the appropriate box, to select/change the temperature and time of the preset program to modify.

Edit special staining: PAS modified



Press **OK** to confirm the changes and proceed with the next step to modify...

Edit special staining: PAS modified



By selecting **Timer** is possible to change the countdown of those step that do not require MWs (eg. rinsings, washings, incubations...)

By selecting **Simple** is possible to change the warnings.

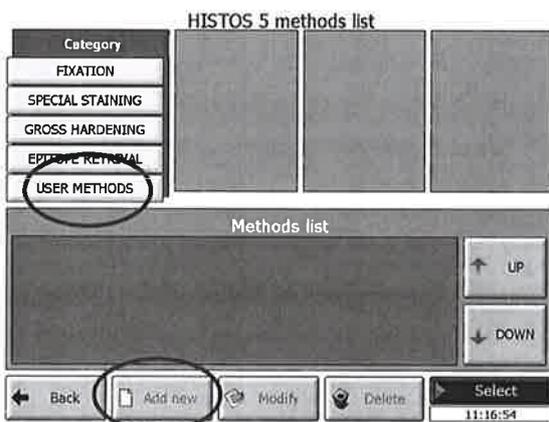
**5.8 CREATING ADDITIONAL APPLICATION PROGRAMS FOR HISTOS**

**Before starting, note the important points:**

1. This section explains how to create completely new program applications and **NOT** how to modify existing stored programs ( for this, see section 5.3).
2. At the end of this section are a number of table printouts provided as a reference for calculating the time and temperature setting required for the ramping step of the new application. The reason for this is that there is a limit as to how fast microwaves will take to heat a solution to a specific temperature over a given time, depending on the module in use.
3. To correctly use these tables:
  - a. Select the table for the module that you are to use
  - b. Select the temperature that you require to the nearest 5°C from the temperature scale and draw on imaginary line horizontally across until it intersects the preset curve. At this point bring the line down vertically until it intersects the time scale to the nearest minute. This will give the time to reach the desired temperature in the first step i.e. ramping.

Proceed as follows to create a new application program.

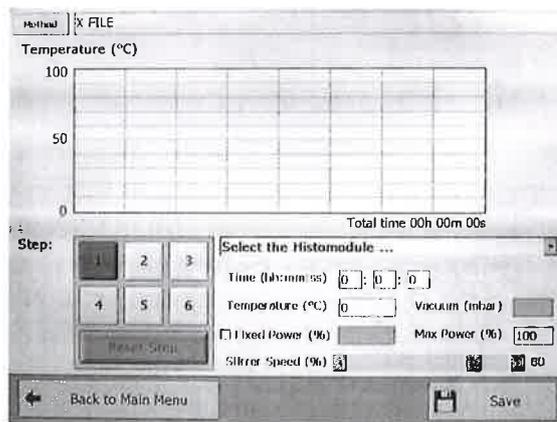
From the main menu touch **METHOD'S DIRECTORY** button and the following screen will appear. Select **USER METHODS** and then select **Add NEW**



Insert the name of the new program and touch **ENTER**.

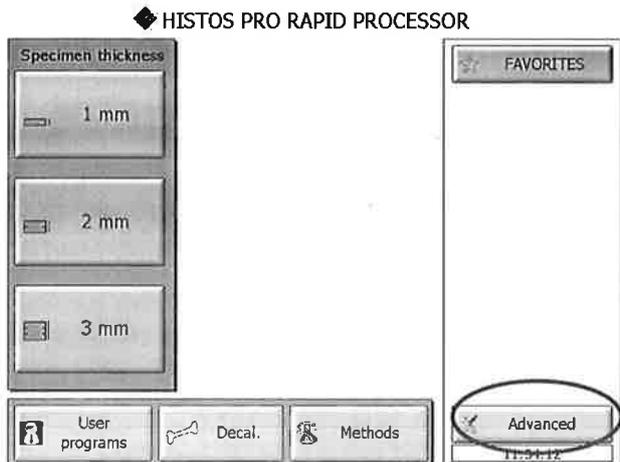


The following screen will appear. The process is similar to that described at paragraph "modify and create HISTOS other application programs"



## 5.9 ADVANCED FUNCTIONS

The following section describes the system settings. Touch the **ADVANCED** button.

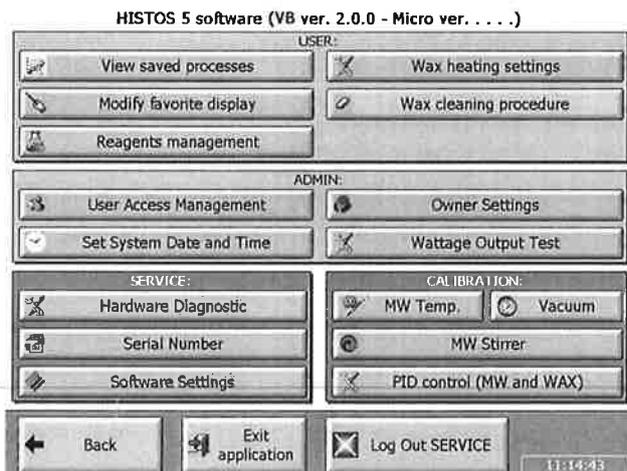


The following screen will appear.

**NOTE:**

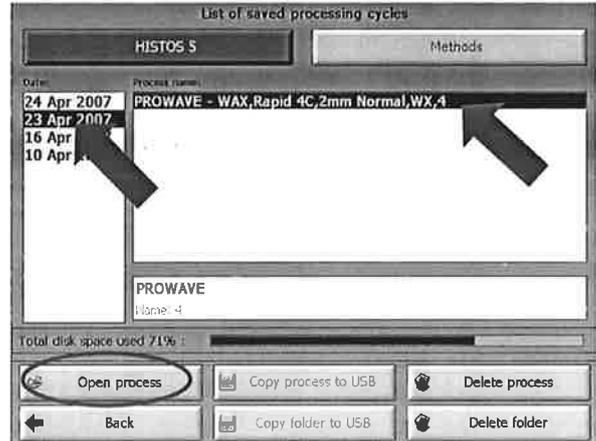
**Standard User** is not allowed to operate in **ADVANCED SCREEN, ADMIN part**

**Administrator** can access to **WATTAGE OUTPUT TESTING, SET SYSTEM DATE AND TIME, USER ACCESS MANAGEMENT, OWNER SETTINGS and FAVORITE VIEW/COPY the SAVED WORKING SESSION, WAX SETTINGS (complete view) REAGENT MANAGEMENT Administrator password is "ROOT". Service has full access.**

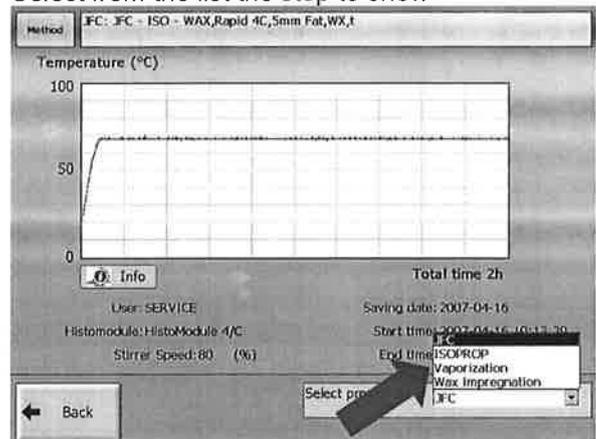


### 5.9.1 VIEW SAVED PROCESSINGS OPEN PROCESS

select the Date and the Process of interest and then press **Open process**



Select from the list the step to show



### COPY PROCESS

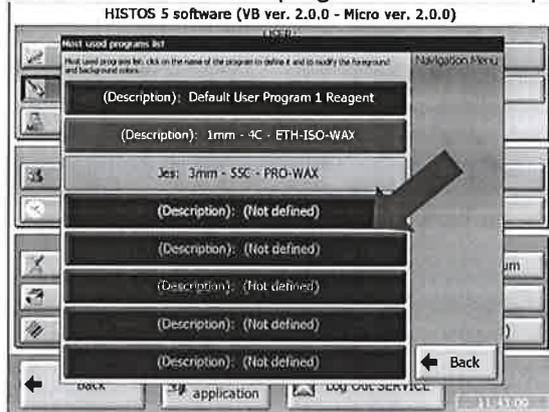
The **"Saved working session"** button (Main screen) allows exporting all the saved processes graphics: first, insert the USB memory, select the file of interest and **"Copy process to USB"** it or **"Copy folder to USB"** to copy the whole folder .



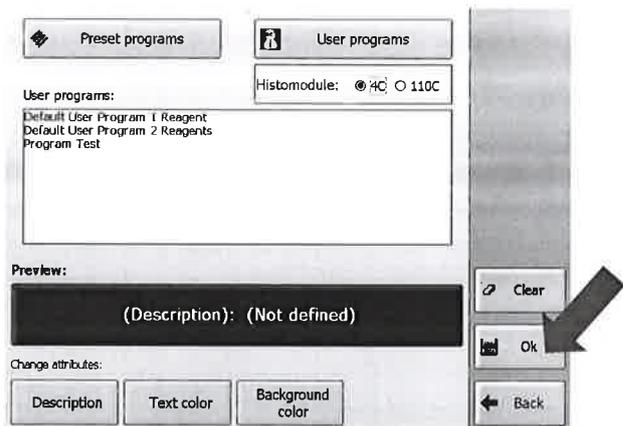
Alternatively choose delete process or delete folder if you want to delete one file only or the whole folder selected respectively.

**5.9.2 MODIFY FAVORITE DISPLAY**

This allows to add one program in a favorite page

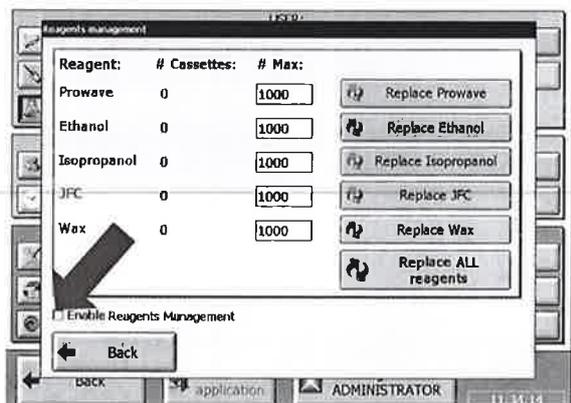


Select the program to add from the lists of the **Preset** or the **User Programs** and then insert a short description, if required is possible to change text and background colors. Press Ok to save



**5.9.3 REAGENT MANAGEMENT**

Check the relative box to enable the Reagent Management and simply press **Replace** button to reset the value after change the relative reagent or **Replace ALL** to reset all the value



Insert the maximum number of cassettes to process in the boxes of **# Max** to set the limit of use for every reagent.

When the Reagent Management it is enabled, before the start of any processing the following screen will appear to enter the number of cassette to process in the selected run

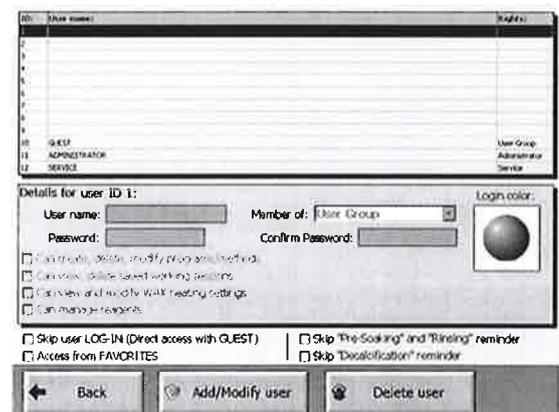


When the limit of cassettes to process is overcome, the Histos shows in the main screen the reagent/s expired..

**5.9.4 USERS ACCESS MANAGEMENT**

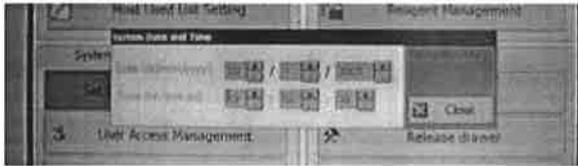
This allows to select, create and modify level of access and login color of users. Select one position from the list and press **Add/Modify user** to enter name, password, level of access and login color. (Service log in is only for service people)

Delete user will cancel all the detail of the selected User.

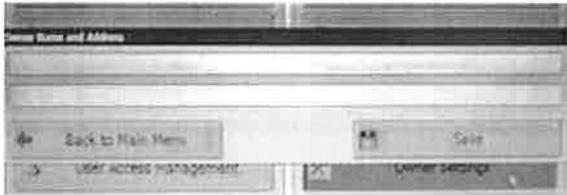


From this screen it is also possible to enable/disable the Processing and Decalcification Reminder by checking the relative box

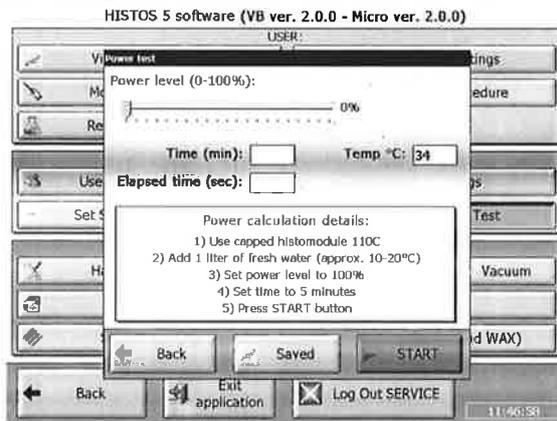
**5.9.5 SET SYSTEM DATE AND TIME**



**5.9.6 OWNER SETTINGS**



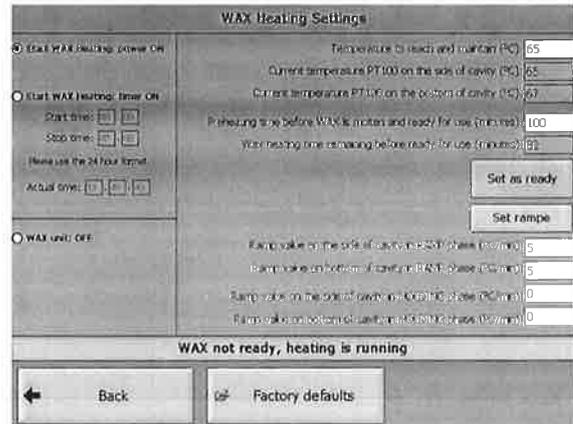
**5.9.7 WATTAGE OUTPUT TESTING**



Will be used for the periodic power test. Follow the step-by-step procedure.

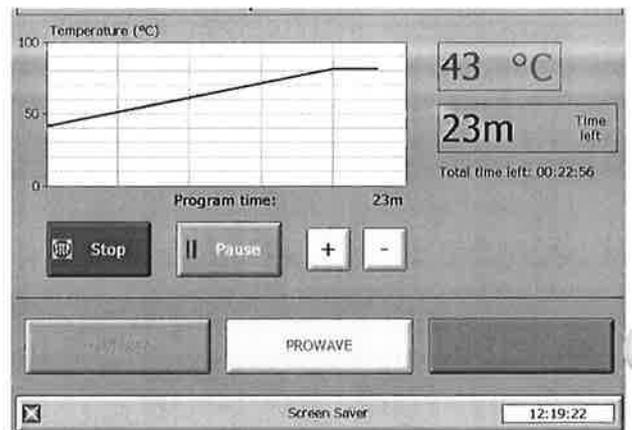
**5.9.8 WAX HEATING SETTING**

The "Wax setting" allows to set the heating on or off and select the exact temperature of the wax to reach and maintain. It's also possible to set the countdown time for the melting of the Paraffin



**5.9.9 WAX CLEANING PROCEDURES**

The "Wax cleaning" allows to perform the cleaning by the vaporization of the contamination of alcohol traces eventually present in the paraffine after many processing.



**BACK TO MAIN SCREEN**

By pressing "Back" the software goes back to the main screen.

## 6 TROUBLE SHOOTING AND MAINTENANCE

### 6.1 TROUBLE SHOOTING

The following table provides the HISTOS operator and service technician with possible causes in the event a problem develops with the unit.

PROBLEM	DIAGNOSIS
- Difficulties in switching on the Touch Control: display dark or fully lightened or crossed by vertical and horizontal lines.	<ul style="list-style-type: none"> <li>A) Check perfect connection of 9 pins cable between HISTOS and Wax Unit/Touch Control.</li> <li>B) Repeat switching on of the unit by MAIN SWITCH placed on the front frame of the HISTOS.</li> <li>C) Environment temperature may be below 18-20°C. Keep the terminal on for 30 minutes.</li> </ul>
- The unit does not switch on	<ul style="list-style-type: none"> <li>- 2 Fuses 8AT-250V power mains grid.</li> <li>- Front Switch broken. (Service technician)</li> <li>- RLC Filter damaged. (Service technician)</li> </ul>
- There is no microwave emission	<ul style="list-style-type: none"> <li>- Magnetron. (Service technician)</li> <li>- Heating transformer. (Service technician)</li> <li>- Door-handle switches. (Service technician)</li> <li>- The magnetron fan is malfunctioning which causes magnetron overheating and activation of the temperature sensor located on magnetron. (Service technician)</li> </ul>
- After 5 seconds magnetron heating time the program does not start and the display shows "DOOR NOT CLOSED".	<ul style="list-style-type: none"> <li>- The door is not perfectly closed.</li> <li>- Door-handle switches. (Service technician)</li> </ul>
<div style="border: 1px solid black; padding: 5px;"> <p>Milestone RHS</p> <p><b>Milestone Histos not connected</b></p> </div>	<ul style="list-style-type: none"> <li>- check connections of the cables from the back of the unit.</li> </ul>

<p>SimplyWave Emulator: ERROR!!</p> <p><b>ERROR!!!</b></p> <p>An error occurred during the program running: the stirrer does not run!</p> <p>What do you like to do?</p> <p><b>Resume the program</b>      <b>Stop the program</b></p>	<ul style="list-style-type: none"> <li>- Stop the unit and check if the stirrer has been blocked or damaged.</li> </ul>
<p>SimplyWave Emulator: ERROR!!</p> <p><b>ERROR!!!</b></p> <p>An error occurred during the program running: temperature has DROPPED DOWN!</p> <p>What do you like to do?</p> <p><b>Resume the program</b>      <b>Stop the program</b></p>	<ul style="list-style-type: none"> <li>- Check if there are vapors inside the cavity. If yes stop the unit and let the steam go out and be sure that the infrared temperature sensor glass is dry before restarting any program.</li> <li>- Check if the solution is covering the cassettes level.</li> <li>- Check if the lid is on top of the glass and is sitting correctly.</li> <li>- Check if the stirrer is working.</li> <li>- Check if the selected program is correct for the histomodule in use</li> </ul>
<p>SimplyWave Emulator: ERROR!!</p> <p><b>ERROR!!!</b></p> <p>An error occurred during the program running: temperature is TOO HIGH!</p> <p>What do you like to do?</p> <p><b>Resume the program</b>      <b>Stop the program</b></p>	<ul style="list-style-type: none"> <li>- Check if the stirrer is working.</li> <li>- Check if the solution is covering the cassettes level.</li> <li>- Check if the lid is on top of the glass and is sitting correctly.</li> <li>- Check if the selected program is correct for the histomodule in use</li> </ul>
<p><b>DOOR OPEN: PROGRAM PAUSED!</b></p> <p><b>STOP THE PROGRAM</b></p>	<ul style="list-style-type: none"> <li>- Close the door by pulling downwards the handle.</li> </ul>

## **6.2 MAINTENANCE**

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Maintenance of the HISTOS is divided into two categories. The first is at the laboratory level where simple routine maintenance can prevent the likelihood of more serious problems occurring at a later stage.

The second level of maintenance is technically more detailed and is beyond the scope of normal laboratory personnel.

### **LABORATORY PERSONNEL**

Minimal routine maintenance is required by laboratory personnel that use HISTOS. The following is recommended to ensure optimal performance of the HISTOS.

**DAILY** : Ensure the HISTOS is generally kept clean after each use, but do not use abrasives or sharp instruments that may damage acid/solvent resistant coating etc.

Periodically check the cable connections and the plugs.

Check the reagents daily, and change them when expired or become dirty.  
Wax must be occasionally topped up. Must be replaced when physically dirty.

### **AUTHORIZED SERVICE PERSONNEL**

The service manual information is for use by authorized service personnel when carrying out repairs, and is not intended for use by laboratory personnel.  
Issued as a separate service manual.

### **6.3 REAGENT PROCESSING PROTOCOLS: WHEN TO USE - RECOMMENDATIONS**

#### **Ethanol - Isopropanol - Wax**

1. Ethanol-Isopropanol recommended as the standard routine method for small to medium-large size biopsies.
2. This protocol can be used for tissues where overnight fixation time is uncertain since Ethanol can also act as a secondary fixative.
3. Fat content of the tissue is kept to a minimum and up to 3mm thickness.
4. Very Cost effective for general histoprocessing
5. Strongly recommended for processing of Renal/Gastric, breast core biopsies and equivalent tissue size.

#### **JFC – Isopropanol - Wax**

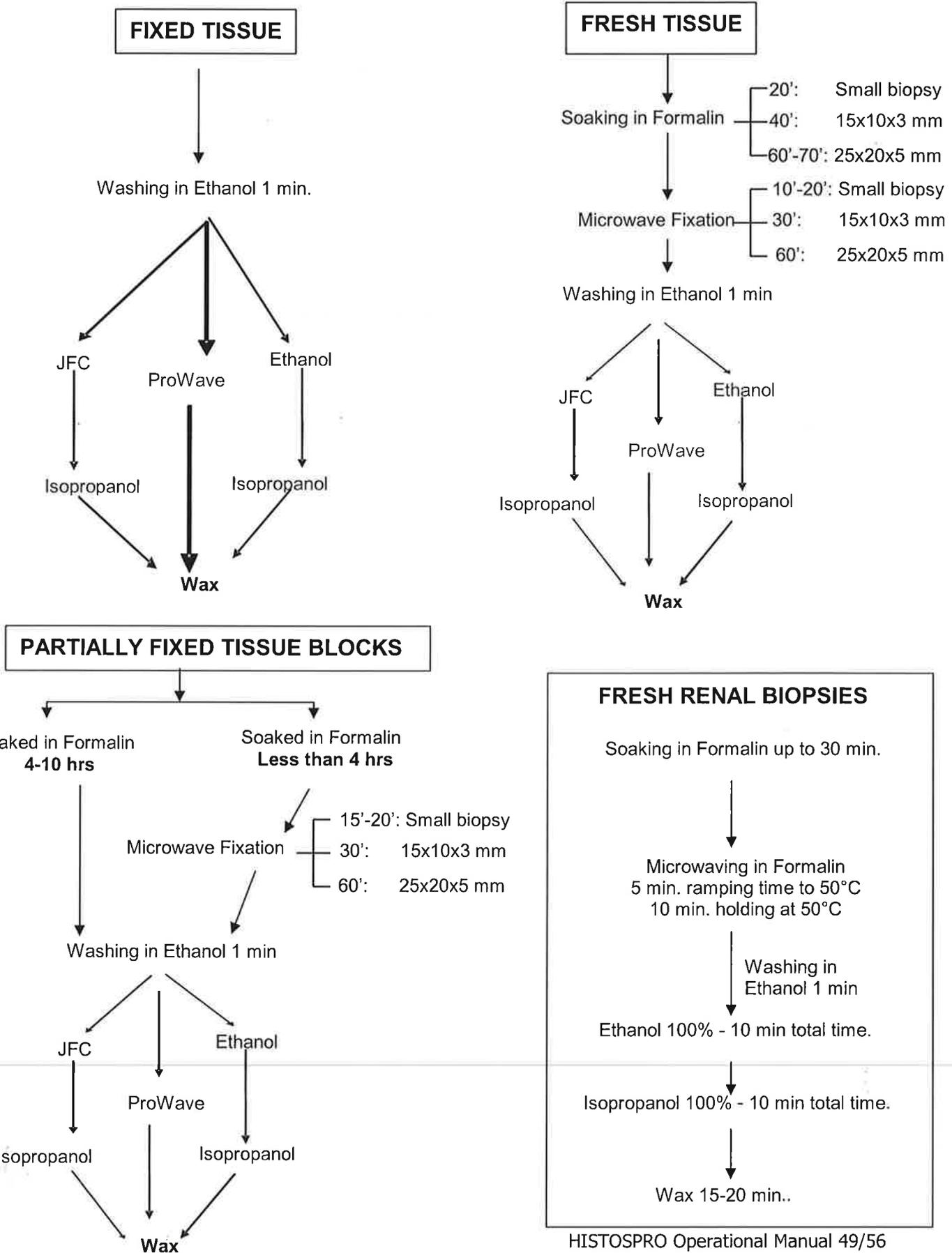
1. JFC - ISO sequence is strongly recommended for high fat content such as Breast / Lipoma up to full size cassette in less than 5 hours.
2. Especially suited for routine use and for very fatty tissues e.g. breast admixed with normal parenchyma (> 3mm thickness).
3. This protocol is strongly recommended for tissues known to be well fixed.

#### **PROWAVE - Wax**

1. PROWAVE is a “one step” solution can be used for tissues where overnight fixation time is uncertain, since PROWAVE can also act as a secondary fixative.
1. Ideally suited for non-fatty tissues (up to 5 mm thick) or high lipid content tissues keeping the size limit up to 3 mm thick.

# Histos 3 / Histos 5

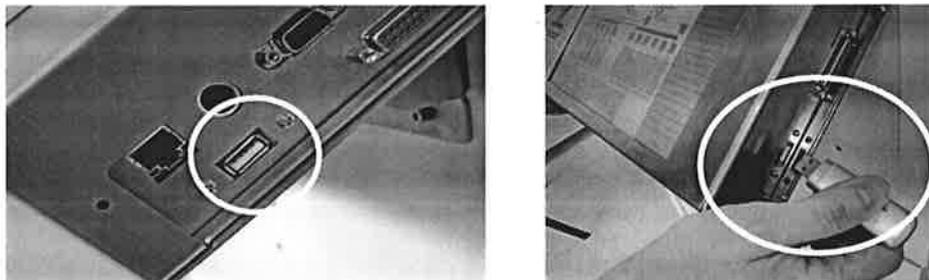
## Histoprocessing Selection Guidelines



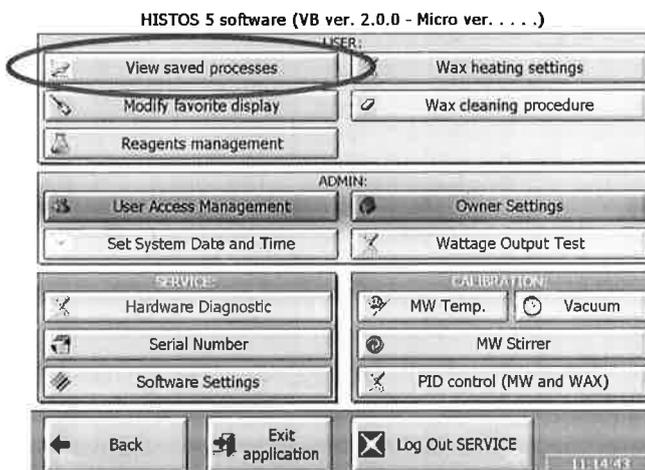
## 7 HOW TO EXPORT THE SAVED PROCESSINGS

### 7.1 FROM M-5 UNIT TO USB KEY

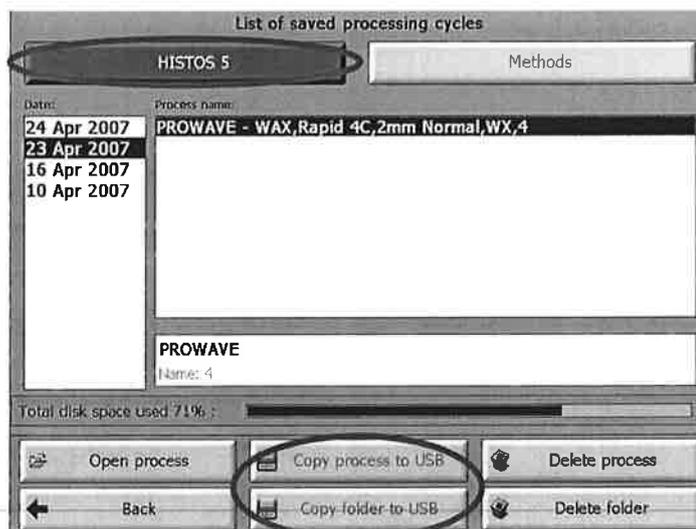
Insert the USB memory stick into its slot (right side of the terminal)



Starting from the “Advanced Functions” shown below,



press the “**Saved processing**” button. This allows you exporting all the saved processed graphics: select the folder of interest (HISTOS-5, HISTOS-3 or Methods) and “Copy selected to USB” or “Copy ALL to USB” to copy the whole HardDisk contents.



NOTE: alternatively choose Delete selected or Delete ALL if you want to definitely eliminate one file only or every file saved, respectively.

## 7.2 HOW TO INSTALL...NET framework...

Before executing the "Data\_Export.exe" application, install on your PC the platform .NET Framework.

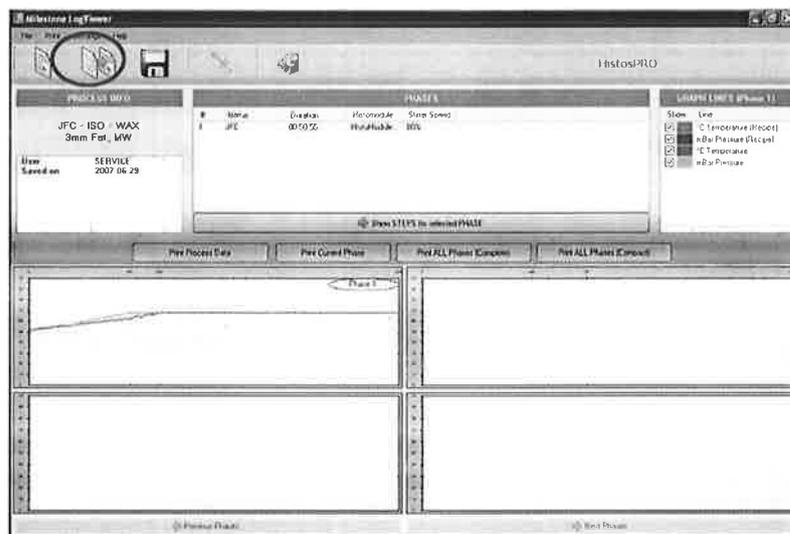
This application allows you to run the "Data Export" software.

1. The .NET application is saved on the USB memory stick provided with the unit.
2. Double click on the "dotnetfx.exe" icon presents in the USB memory stick starting the installation program.
3. During the installation press "Yes" or "Continue" on the dialog box, allowing the correct program installation.
4. Now your PC is ready to install the "Data Export" software, following the instruction reported in the next chapter below.

## 8 START THE "DATA EXPORT" APPLICATION

### 8.1 FROM USB KEY TO PC

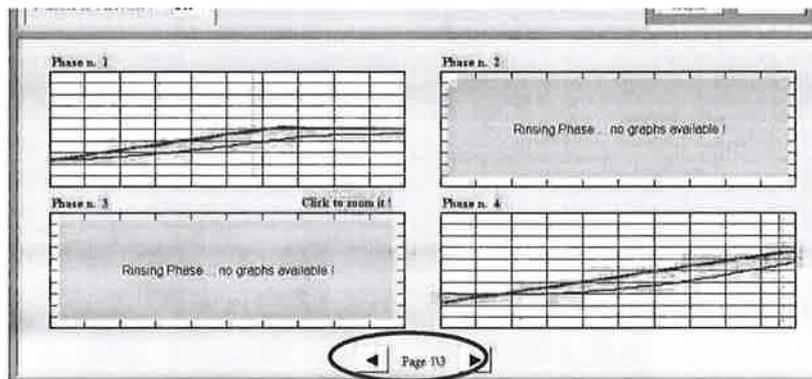
- Once installed the .NET framework, (see above) double click on the "Data\_Export setup.msi", file to install the program.  
At the end of the procedure find and double click on the new "Milestone" icon now present on your desktop.
- insert the USB memory stick and follow the instructions for files downloading.
- At this stage select "Load data from USB to PC" if needed to print new saved processing from HISTOS unit. After that press "Load data from PC" from the File menu choosing the file of interest.



- To print data already stored into your PC hard disk press directly "Load data from PC" and...



- ...Choose the file of interest and press "OK".
- The processing curves done will be loaded and shown as in the picture below.
- The fields describe the data of interest such as; phases done, starting/ending time, reagent used, histomodule used, etc...



- Click on one curve directly to enlarge it, or on the arrows to view next graphs.

Under the "Help" menu you can find a complete overview about the features of this Software and hints related "How to..." Use it.

This brief guide will help you to simply use the application 'Data Export' to perform your processing view and print sessions.

**P.S.** note that all the processing now transferred from the USB memory stick to the PC are stored into the "Milestone srl" folder, "Saved" files.

This folders have been automatically created by the Data Viewer software under the "Program files" folder on your PC Hard Disk Drive.

## 8.2 HOW TO PRINT THE PROCESS

- Before printing, under "Settings" menu choose "Printer and print properties" and customize the settings if necessary.
- To modify the heading of the pages, edit the label under "Printed page heading" under "Settings" menu.
- Select one phase and press "Print lines" or check "All phases" to print out the whole saved process (red Circle). After having pressed the "Print lines" icon, choose the "compact" (one page format) or the "normal" (one phase – one page) print output.

The screenshot shows the HISTOSPRO software interface. At the top, a menu bar includes 'Print' and 'Print Properties'. Below it, a table lists processing parameters. A red circle highlights the 'Print' menu options: 'Print All Phases', 'Print All Phases - Compact', and 'Print All Phases - Normal'. Below the interface, a detailed printout is shown, featuring a header with processing details, five phase-specific graphs, and a summary table for Phase #4.

**Processing Details:**

- Processing Name: ETH-EO-WAX
- Power: 400W
- etohiso 3mm
- Processing Date: 2005-12-20
- User Name: SERVICE

**Phase #4 Summary Table:**

Step	Time (hh:mm:ss)	Temperature (°C)	Pressure (mbar)
1	00:05:00	66	1
2	00:15:00	66	1

- Alternatively, selecting "Print Data" the print output will be one page of the raw data shown step by step.

- Phase #2 : Ethanol  
Date : 2005-12-20  
Start Date - Time : 2005-12-20 14:29:29  
End Date - Time : 2005-12-20 14:49:31  
Histomodule : HistModule 4/C  
Stirrer Speed: 80 %
- Phase #3 : Dehydration  
Date : 2005-12-20  
Start Date - Time : 2005-12-20 14:51:11  
End Date - Time : 2005-12-20 15:56:13  
Histomodule : HistModule 4/C  
Stirrer Speed: 80 %
- Phase #4 : Vaporization  
Date : 2005-12-20  
Start Date - Time : 2005-12-20 15:57:17  
End Date - Time : 2005-12-20 16:53:18  
Histomodule : HistModule 4/C-4/V WAX  
Stirrer Speed: 0 %
- Phase #5 : Wax Impregnation  
Date : 2005-12-20  
Start Date - Time : 2005-12-20 16:53:21  
End Date - Time : 2005-12-20 18:53:13  
Histomodule : HistModule 4/C-4/V WAX  
Stirrer Speed: 80 %

## APPENDIX A

### MILESTONE RAPID MICROWAVE HISTOPROCESSORS CAP COMPLIANCE

ANP.27720 Phase1

**Are microwave devices monitored at least annually to ensure that there is less than 5mW/cm<sup>2</sup> leakage at a distance of 5cm from the surface?**

Each Milestone microwave instrument is tested for radiation leakage by the manufacture. Documentation of this testing is reported in the instrument Quality Control Report. A report of leakage detection testing is included in the Purchased Service Contract yearly preventive maintenance.

ANP.28290 Phase 1

**Are microwave devices periodically monitored for temperature reproducibility?**

Microwave Wattage Output Testing procedures are integrated into the software of Milestone microwave instruments and can be easily performed by the customer. Written documentation of each run temperature can be produced using the Saved Session procedure.

ANP.28860 Phase 1

**Are all containers used in microwave devices made from microwave-transparent material?** *Note: Examples of microwave-transparent materials include ceramics, sodium borosilicate glass, unleaded quartz, fluoropolymers, and nonpolar plastics such as polypropylene, polyethylene and PTFE compounds.*

All containers and accessories supplied by Milestone S.r.l. are made from microwave-transparent material.

ANP.29430 Phase 1

**Are microwave devices properly ventilated?** *Note: Microwave devices should be placed in an appropriate ventilation hood to contain airborne chemical contaminants and potentially infectious agents. Microwave devices used outside a fume hood should have an integral fume extractor that is certified by the manufacturer for use in a clinical laboratory. This checklist question does not apply if only non-hazardous reagents are used in the device (e.g., water, certain biological stains).*

Milestone Rapid Microwave Processors are designed with an integral fume extractor. An exhaust outlet is located in the back of the units. Exhaust hoses are supplied by Milestone with recommendation that the hose be placed inside a chemical fume hood or to an outside venting system. Pathos units have a built-in charcoal/dust filter for stand alone operation. The work area is totally enclosed during operation.

Reference:

College of American Pathologists (CAP)  
Commission On Laboratory Accreditation  
Laboratory Accreditation Program  
Anatomic Pathology Checklist, **ANP.27720, ANP.28290, ANP.28860, ANP.29430**, Revised 06 October 2005

Clinical and Laboratory Standards Institute. *Microwave Device Use in the Histology Laboratory; Approved Guideline*. CLSI document GP28-A [ISBN 1-56238-563-1]. Clinical and Laboratory Standards Institute, 940 West Valley Road, Suite 1400, Wayne, Pennsylvania 19087-1898 USA, 2005.

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We would like to inform you that accessories manufactured by Milestone Srl – Italy that are used with our HISTOSPRO family of microwave histoprocessors as well as with our Pathos fully automatic microwave histoprocessor are made of the following materials:

- Borosilicate Glass
- Teflon PFA
- Polypropylene PP
- PEEK

And that, on the base of their dielectric parameters, these materials are suitable for use with microwaves as they are microwave transparent.