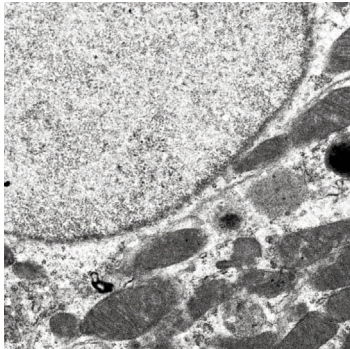
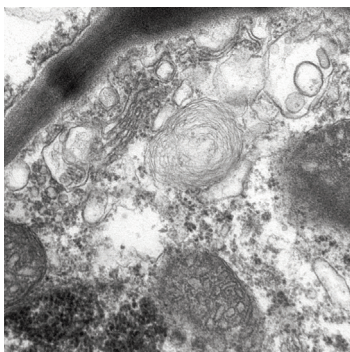
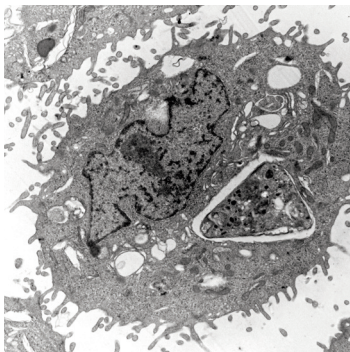


State-of-the-art tissue processor which is compatible with all plastic resins, as well as paraffin waxes.

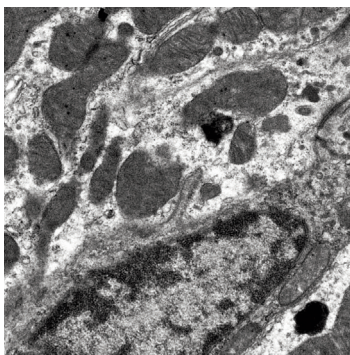


LYNX II

Automated Tissue Processor for Histology and Microscopy



**Electron
Microscopy
Sciences**



LYNX II Automated Tissue Processor for Histology and Microscopy

EMS is proud to feature the most unique, state-of-the-art tissue processor which is compatible with all plastic resins, as well as paraffin waxes.

Introduction

LYNX II is designed to be the successor of Lynx Tissue Processor with several enhancements including capabilities to perform optional processing of larger size samples for Histology.

The LYNX II holds 12 reagent vials for EM processing. Optional HP (Histology processing) may be done with 12 larger size reagent vials for HP processing. In both EM and HP modes, LYNX II has two, independently controlled, heating/cooling stations.

Operational Overview of LYNX II

LYNX II is a batch mode, tissue processing system. The tissues may be processed for EM or HP. Tissues of either type are processed in the same manner: Samples are mounted on the sample arm and reagents are loaded on the reagent carousel. Based on the selected program by the user, the LYNX II rotates the reagent carousel until the selected reagent station is at the processing station. At the processing station the sample is lowered in the reagent. Based on the selection of agitation and vacuum, the LYNX II periodically moves the sample arm to provide agitation and applies vacuum when the agitation is not in progress. Once the programmed time in a given reagent is over, the sample is raised and the next reagent is rotated in the processing station.

The operator may select the processing for EM or HP by the program numbers. Programs 1 through 10 are used for EM processing and programs 11-20 are used for HP processing. In addition to the proper program number selection, it is the responsibility of the end user to use the proper carousel positions and the appropriate type of reagent vials based on the selection of EM vs. HP processing. Once the unit is properly configured for EM or HP processing, the operator loads the reagent carousel and the samples, selects the desired program and starts the run.

At the end of the run, the sample is retained in the last reagent until the operator removes the sample.

Features

- 12 reagent vials for HP processing, each 125 ml volume
- 12 reagent vials for EM processing, each 25 ml volume
- 10 Programs for EM and 10 programs for Histology
- Two independently controlled heating/cooling stations
- Easy replacement of reagent carousel
- Paraffin Processing
- Sample agitation
- Vacuum infiltration during processing
- Choice of plastic and metal containers for improved chemical compatibility and heat transfer
- Optional external media based interface to a PC for ease of programming and allowing for the editing of programs on a PC and the transfer of programs between the LYNX II and the PC
- Built-in fume extraction and ability to connect the discharge hose to lab exhaust system
- Internal battery back-up during power fail to protect the samples
- Ability to continue run after power interruption
- User Friendly Operator Interface
- Optional external UPS for continued processing during longer power outages



Functional Specifications

System Configuration

1. LYNX II is designed with the following functional modules.

- Rotary mechanism to rotate the reagents
- EM and HP reagent carousel
- Up/Down mechanism to move the sample in and out of the reagent as well as to provide the agitation
- EM and HP Sample arms
- Tight seal for all reagent containers except for the one at the processing station.
- Vacuum pump and a pressure sensor or a switch
- Two Peltier operated heating/cooling station with independent temperature sensors and controls
- Fume extraction fan and air flow sensor

2. Reagent Carousel

A reagent carousel may be installed, either a 12-position carousel for holding EM reagents or a 12-position carousel for holding HP reagents. The EM carousel holds cylindrical vials that are approx. 1.2" in diameter and 2.5" tall whereas HP vials are approx. 2.2" diameter (to hold 1.75" x 1.2" cassette flat) and 2.5" tall. The carousel is approx. 12" in diameter. Each vial has a flange for ease of handling. The vials are available in either plastic or aluminum. The vials may be mixed and matched between the metal and the plastic vials on a given carousel for certain kinds of processing.



The LYNX II has a built in sensor to detect that the proper reagent vial types (EM vs. HP) are installed on the unit before starting a run. Ability to detect only one of the two vial types is sufficient.

3. Sample Arm

The sample arm holds either an EM sample holder assembly or an HP sample holder assembly. Each sample holder assembly is designed to mount on the arm at a location to center the samples in its respective reagent container. The Sample Arm top may be changed to accommodate different samples.



LYNX II Automated Tissue Processor for Histology and Microscopy (continued)

4. Agitation and Vacuum

The arm provides a gentle agitation (approx. 5 mm up and down travel at a rate of 2.5 mm per second or one up/down agitation per second) once the sample is in the reagent container. Five agitation strokes are executed in 5 seconds and repeated every 45 seconds. If vacuum infiltration is selected, the agitation will be applied for 5 seconds followed by 40 seconds of vacuum. These agitation-only or the agitation-vacuum cycles will be repeated for the duration of the station time.

The sample holder assembly has a fitting to attach the vacuum hose from the vacuum pump.

5. Heating-Cooling Stations

The LYNX II provides 2 independent, identical heating-cooling stations (HCS). Each HCS is heated or cooled by a Peltier module and has its own temperature sensor. One HCS is located at the sample processing station and the second one is located one position prior to the sample processing station. This arrangement allows for the pre-heating or pre-cooling of the reagent for a program where the reagents are arranged in a sequential, contiguous manner.

Each HCS can be programmed to be between 4°C and 65°C. The accuracy of the actual temperature will be $\pm 2^\circ\text{C}$ measured on the surface of the Heating – Cooling station. The set point at the HCS surface is reached within 7 minutes of the arrival of the reagent at the station.

6. Fume Control

LYNX II provides a fume extraction fan to direct fumes from the reagent/sample area to an exhaust port. An external hose may be connected to the unit and the hose may be directed to a fume hood or to laboratory exhaust system. The fume extraction is designed to ensure that the fumes are diverted away from electronics and the mechanism components.

7. Lid/Cover

An acrylic cover with a latch is part of the fume control system. Controller of the system can detect if the cover is latched or not. By default, a run cannot be started (and will pause) if the cover is not in place. However, there is a software override will allow for the running of the unit without closing the cover.



8. Seal for the Reagent Vials

A tight seal is provided to cover all reagent vials except for the one under the processing station.

Reagents Used

Materials for various components and subsystems of LYNX II is compatible with the following reagents during the processing.

HP Processing

Formalin	Alcohol
Xylene	Xylene Substitutes
Water	Paraffin
10% bleach solution (to wipe clean the system)	

EM Processing

Buffers	Osmium Tetroxide
Ethyl Alcohol	Acetone
Propylene Oxide	Epoxy/acrylic resins

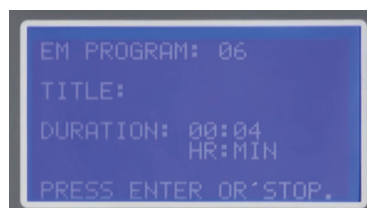
9. Operation During Power Outage

The LYNX II contains a small internal battery (that is capable of moving the sample from up position to down position and to move the carousel in the next reagent position at least three times without being re-charged) to preserve the sample during a power outage. When the electronics in LYNX II detects that the A/C power is about to fail, the LYNX II will shut down the power to the Peltier elements at both heating/cooling stations. Next, it will ensure that the samples are down in a reagent container. If the samples are out of a reagent vial (since LYNX II was just about to rotate the carousel to the next reagent position or was in the middle of the rotation), the carousel will be rotated by one position and then the samples will be lowered in to the reagent at the processing station. The time when the power fail warning was activated will be recorded and the unit will go in the stand by mode.

Once the power is restored and is maintained for at least 30 seconds, LYNX II will resume the run. As LYNX II resumes run, the station time count down does not resume until the heating/cooling stations have reached the desired temperatures. The station time countdown does not begin for additional 60 minutes if the temperature at the processing station or at the previous station was above 55°C during an HP run. This feature ensures that the paraffin at either of the two stations completely melts before moving to the next station.

See how it works...

Visit our YouTube channel. Our Technical Services team will show you how to get up and running.



LYNX II Automated Tissue Processor for Histology and Microscopy

Ordering Information

Cat. No.	Description	Qty.
L12600	Lynx II for Microscopy*	each
L12601	Lynx II for Histology**	each
L12610	Histology Kit	each
(Histo Sample Holder, Histo Sample Arm, Histo Carousel, Power Cord, Operator Manual, Histo Aluminum Containers (12), Histo Plastic Containers (36), Plastic Caps (36), Exhaust Hose, Small Cassettes (100), 2 Sample Record Note Pads, Spare Fuses.		
L12612	L12612 Electron Microscopy Kit	each
(EM Sample Holder, EM Sample Arm, EM Carousel, Loading Jig, Power Cord, Operator Manual, Aluminum Containers (12), Plastic Containers (72), Plastic Caps (72), Exhaust Hose, Small Baskets (100), Large Baskets (100), Basket Lids (100), 2 Sample Record Note Pads, Spare Fuses		
L12602	Lynx II for EM and HP Combined***	each
L12655	EM Reagent Vials, Bag of 72	each
L12656	EM Regent Vial Cap, Bag of 72	each
L12657	HP Reagent Vials, Bag of 36	each
L12658	HP Reagent Vial Cap, Bag of 36	each
L12937	Lynx II Rubber Bumpers	50/pk
L12659	EM Aluminum Container (Box of 12)	each
L12660	HP Aluminum Container (Box of 12)	each
L13154	EM Sample Holder Assembly (Basket Stem Assembly)	each
L13154-OR	O-Ring Assembly for Basket Stem	10/pk
L12663	HP Cassette Holder Assembly	each
L12661	Vacuum Pump Tubing (1 each)	each
L12662	Vial Seal Assembly	each
L12673	Lynx II Exhaust Hose, 10' long	each
L12995	EM Sample Arm Seal	each
L12996	HP Sample Arm Seal	each
L12952	EM Carousel (Without Aluminum Containers)	each
L12953	HP Carousel (Without Aluminum Containers)	each
L12664	Replacement Back-up Battery	each
L12680	External Alarm Box	each
L12665	Lynx II Operator Manual	each
L12667	Lynx II Service Manual	each

* The Lynx II for Microscopy comes with: EM Sample Holder, EM Sample Arm, EM Carousel, Loading Jig (pictured right), Power Cord, Operator Manual, Aluminum Containers (24), Plastic Containers(72), Plastic Caps (72), Exhaust Hose, Small Baskets (100), Large Baskets (100), Basket Lids (100), 2 Sample Record Note Pads, Spare Fuses.

** The Lynx II for Histology comes with: Histo Sample Holder, Histo Sample Arm, Histo Carousel, Power Cord, Operator Manual, Histo Aluminum Containers (24), Histo Plastic Containers(36), Plastic Caps (36), Exhaust Hose, Small Cassettes (100), 2 Sample Record Note Pads, Spare Fuses.

*** The Lynx II for Microscopy and Histology comes with everything found in both units.

All of the above accessories may be purchased separate or in the kit.

Lynx Accessories and Replacement Parts (fit both Lynx I and II)

300.0002	Disposable Basket Small	100/pk
300.0003	Disposable Basket, Large	100/pk
300.0005	Disposable Basket, Lid	100/pk
300.0196	Disposable Basket, 8 Segment	100/pk
300.0036	Disposable Vials	100/pk
300.9011	Loading Jig	each
300.9017	Vial Lid Assembly	each
300.9010	Basket Stem & Foot Assembly	each
306.0830	Key	each
300.0041	Specimen Record Pad 3&4 Div.	each
300.8041	Exhaust Hose, 3 meter	each
300.0140	Disposable Vial Cap	100/pk
300.9023	Vial Retaining Band	each
300.9513	Specimen Record Pad 8 Div	each

User Replaceable Parts

300.0139	User Manual	each
300.9016	Vial Seal Assembly	each

Specifications

Dimensions

Max Width	22.5"
Max Depth	19.0"
Max Height	12.0" (cover closed)
Max Weight	50lb (32 kg)

Electrical Design

Display	8 lines x 20 column text only LCD
Keypad	Membrane style keypad with tactile feed back
Mechanism Drive	Stepper Motors
Power Requirements	100 - 115 volts AC, 50-60 Hz, 8 Amps Max 230 volts AC, 50-60 Hz, 4 Amps Max
Back-up power	NiCd Battery, 12 volts, 1 Amp-hour

Fuse Rating

100 - 115V version	8 Amps x 250 Volts AC, Time Delayed (Slo-Blo)
230V version	5 Amps x 250 Volts AC, Time Delayed (Slo-Blo)
100 - 115V version	8 Amps x 250 Volts AC, Time Delayed (Slo-Blo)
230V version	5 Amps x 250 Volts AC, Time Delayed (Slo-Blo)

Operating Environmental Conditions

Ambient Temperature	20 to 32 °C (70 to 90°F)
Relative Humidity	20-80% non-condensing
Ambient Pressure	28"-32" (70-80 mm) of Hg

Storage/Transportation Conditions

Temperature	10-40 °C (50 to 102°F)
Humidity	15%-80% non-condensing
Pressure	28"-32" (70-80 mm) of Hg



Loading Jig



HP Vial

EM Vial

Specimen Record

Lynx II
Automated Tissue Processor
Electron Microscopy Sciences

Laboratory: _____
Operator: _____
Ref: _____ / _____ / _____ Date: _____

NO.	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD
1	A	B	C	D	E	F	G
2	A	B	C	D	E	F	G
3	A	B	C	D	E	F	G
4	A	B	C	D	E	F	G
5	A	B	C	D	E	F	G
6	A	B	C	D	E	F	G
7	A	B	C	D	E	F	G

GRAPHIC NO. 300-0013
REV. 02/87

Specimen Record Pad 8 Div



YOU MAY ALSO NEED...

Lynx Process Accelerator (LPA)

One on the most time consuming tasks during Paraffin processing is wax infiltration. Not a step to cut corners on unless you want to deal with poorly infiltrated blocks. The Lynx-LPA was designed to allow a greater through-put of specimens without compromising the critical infiltration step. Once your initial tissues reach the first paraffin step you can transfer the cassette holder to the Lynx-Pal for vacuum infiltration while you un-burden the Lynx to start another process cycle.



The LPA has 3 positions to accept three HP cassette holder which conveniently uses the same Aluminum vial as the Lynx processor to contain paraffin. Each Aluminum vial is fitted with a platform to allow the stir-bar to circulate the melted wax.

Processing time can be set between 1 and 180 minutes in variable increments. Temperature can be set between 40 and 65°C in one degree C increments. Temperature is displayed in Deg C as a two digit number without any decimal point. The temperature accuracy at the sensor (and on the display) will be within $\pm 2^{\circ}\text{C}$. Vacuum off time can be between 0 and 3 minutes in 1 minute increments. Vacuum cycle runs as on time followed by the off time where 0 on time implies that no vacuum is necessary and 0 off time implies that vacuum must be on continuously. During sample processing the vacuum is applied as per on and off time selection. If the processing is paused, the vacuum is released within 15 seconds. At the end of the cycle time, the vacuum continues to be cycled and temperature is held at the desired point.

Specifications

Number of Paraffin Containers	3
Temperature Range	37° C - 75° C
Vacuum On Time	0:30 To 3:00 (Min:Sec) in 30 second increments
Vacuum Off Time	0:15 to 2:00 (min:sec) in 15 Second increments
Vacuum	Preset at factory, 5 (± 2) PSI below ambient
Temperature Accuracy	$\pm 2^{\circ}\text{C}$ at the sensor at set point
Temperature Offset	-5 to +5°C
Process Time	0:15 To 3:00 (hour:Min) in 15 minute increments
Stirring	Magnetic Stir Bar
Input Voltage	100-230 Volts AC 50/60 Hz
Power	150 Watts Max

Cat. No.	Description	Qty.
LX12668	Lynx Process Accelerator (LPA)	each



Cassettes Compatible with Lynx II

Micromesh™ Single Compartment Biopsy Processing/Embedding Cassettes with Lid

Made from acetyl polymer This new version of Micromesh™ offers 1676 square openings (0.38 mm) allowing for a greatly improved fluid exchange without having to use the biopsy pads. Large anterior and posterior slots in both cassette and cover ensure that the Micromesh™ biopsy cassettes will sink rapidly (far better than cloth mesh cassettes). A large square compartment measuring 27 mm is perfect even for needle biopsies. The cover does not protrude above the cassette, a great space saving feature allowing more cassettes to be stacked in automatic labeling machines and tissue processors.

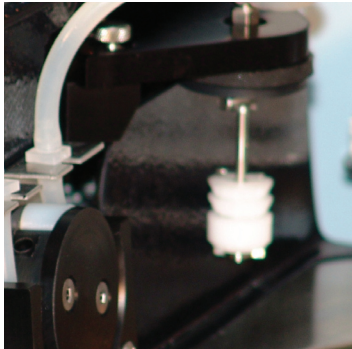
- These patented cassettes keep specimens safely submerged in liquid
- Totally resistant to the most histological chemicals and solvents
- The Micromesh™ ensures efficient fluid exchange and drainage
- One-piece integral lid eliminates the need for separate steel lid
- Lid is locked securely, no danger of specimen loss
- Anterior writing area at a 45° angle – these cassettes are ideal for automated cassettes printers
- Available in non-cytotoxic, non-metallic colors

Each case contains four dispenser boxes of 250 cassettes with covers.

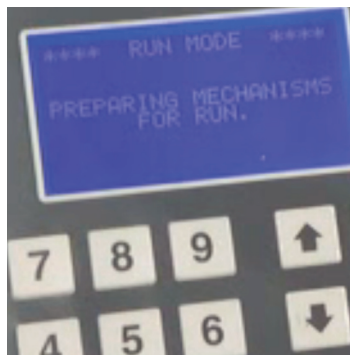
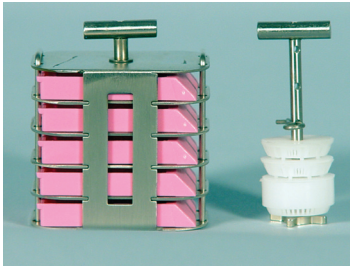
MicroMesh™ Four-Compartment Biopsy Processing/Embedding Cassettes with Lid

This model is similar to the one above – single compartment – but cassettes have four square compartments each measuring 13 mm. Cover and base have about 1676 square openings maximizing fluid exchange and ensuring proper drainage. Each case contains four dispenser boxes of 250 cassettes with covers.

Cat. No.	Cat. No.	Color	Qty.
1-Compartment	4-Compartment		
70074-W	70074-W	White	1000/pk
70074-P	70074-P	Pink	1000/pk
70074-G	70074-G	Green	1000/pk
70074-Y	70074-Y	Yellow	1000/pk
70074-B	70074-B	Blue	1000/pk
70074-PE	70074-PE	Peach	1000/pk
70074-T	70074-T	Tan	1000/pk
70074-GR	70074-GR	Gray	1000/pk
70074-L	70074-L	Lilac	1000/pk
70074-O	70074-O	Orange	1000/pk
70074-A	70074-A	Aqua	1000/pk
70074-FY	70074-FY	Fluo-Yellow	1000/pk



Electron Microscopy Sciences



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