

LN Ultra



Advanced, Stable Cryo Sectioning System For Ultramicrotomy

Sectioning of both biological and industrial materials can be achieved with the LN Ultra, a liquid nitrogen-cooled cryochamber attachment for the PowerTome series of ultramicrotome. Mounted onto the PowerTome, the LN Ultra provides optimal thermal stability necessary for producing cryosections.

Capable of holding temperatures from +40°C to -185°C, the stable environment of the LN Ultra is perfect for sectioning and planing a variety of samples. These may include rubber and soft polymers, or biological cells and tissues; used for example, for immunolabelling using the Tokuyasu technique or CEMOVIS (Cryo Electron Microscopy of Vitreous Ice Sections).

Liquid Nitrogen consumption is very low, allowing for a size efficient 12 liter Dewar. This can provide a stable sectioning environment for up to nine hours, while saving your laboratory LN₂ costs over less efficient systems.

May not be compatible with older PowerTome models; if an LN Ultra is being purchased to be used with a previously purchased PowerTome, we will require the serial number of the PowerTome in order to determine compatibility. Users with a non-compatible PowerTome will require the additional purchase of the current model of the PowerTome controller (P/N 75670) in order to operate the LN Ultra with their PowerTome.

FEATURES

- Newly designed specimen arm with zero coefficient of thermal expansion using Invar alloy and high-efficiency copper heat sink
- Solid aluminum chamber provides greater thermal stability while providing a large opening for easy access to the specimen
- Multiple chamber heaters eliminate exterior condensation
- New pump with updated valves delivers LN₂ in less time
- Brighter LED lights increases visibility in the chamber
- Re-designed cryo-workstation provides comfort and stability when handling sections inside the chamber
- Produces ultra-thin cryosections for biological & materials applications
- Highest thermal stability for demanding Tokuyasu immunolabelling & CEMOVIS techniques
- Ideal for sectioning & cryo-planing co-polymer structures and nano-bio materials
- Excellent for SEM, AFM and other scanning probe microscopies
- Quick install & easy removal for switching efficiently from cryo to room temperature sectioning and back
- Quickly switch between pre-cooled knives in holders designed to accommodate multiple diamond or glass knives, or a trim tool
- Knife clearance angle easily adjusted inside cooled chamber, with external knife rotation & lateral movement control
- Hybrid control system including touch screen computer and digital tactile controller when mounted on a PowerTome PC
- Rapid trimming with computer control
- Compact digital tactile controller displays knife and specimen temperatures, conveniently stacks on top of PowerTome controller

SUPPLIED WITH

- Insulated & externally heated cryosectioning chamber with covers
- Cryo workstation with handrests and tool tray
- Digital control unit with 4 temperature memory channels and digital display of knife and specimen temperatures
- Specimen mounting pins (10 each; 2mm, 3 mm, and 6.5mm) and pin holders
- Flat specimen holders (2)
- Four knife holders enable the use of a variety of glass and diamond knives, tungsten carbide and diamond trimming tools
- 12 liter table top LN₂ Dewar with cap
- LN₂ Pump (non-pressurized), with insulated transfer line and pump stand

SPECIFICATIONS

- Temperature Range +40°C to -185°C
- Temperature Stability: +/- 0.1°C
- LN₂ Dewar Volume 12L
- Operating Time Up To 9 hrs.

POWER SUPPLY (SPECIFY UPON ORDER)

- 100/120/220/240V 50/60HZ

SHIPPING SPECIFICATIONS

- Dimensions: 660mm x 660mm x 660mm / 26" x 26" x 26"
- Gross weight: 74.5kg / 164lbs

CRYO ULTRAMICROTOMY TRAINING

- CITS2020 Cryo in the Sun 2020 - 4 1/2 day cryo ultramicrotomy workshop in Tucson, Arizona. Includes hotel accommodation, two meals a day during workshop days, course materials, one on one instruction with RMC specialists. Purchase of an LN Ultra or CR1000 includes attendance for one person to this course within 1 year of purchase

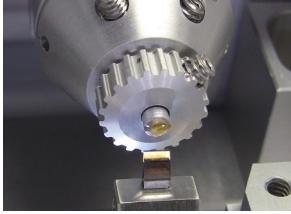
<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
75350-LN	LN ULTRA ASSEMBLY	
- 74929	Controller	1
- 77401	Cryochamber Assembly	1
- 74310	Transfer Line Assembly	1
- 77951-1	Transformer	1
- 55AH047	Cable, 25 pin power	1
- 77929	Cable, Dewar 6 pin	1
- 5439	Cable, USB to PC	1
- 74031-1	Cable, 4 pin Power	1
- 77995	Cable, 9 pin Power	1
- 55AH071	220V Universal Power Cord	1
or		
55AH044	Power Cord, U.S. & Japan	
or		
55AH067	Power Cord, China & Australia	
or		
55AH065	Power Cord, U.K.	
or		
55AH064	Power Cord, European	
- 60453	Tubing, Tygon for pump	1
- 74065	Fill Line Stand	1
- 74322	Exhaust Hose	1
- 56AC104	Power Conditioner 110V / 120V	1
or		
56AC102	Power Conditioner 220V / 240V	
- 60456	Dewar, 12L	1
- 74410	Cryochamber Cover	1
- 74449	Cryochamber Cover, 2 piece	1
- 71181	Mounting Dish	1
- 74208	Pump Stand, Curved	1
- 74257	Dewar Cap	1
- 74895-0	Ergo. Workstation	1
71005	ACCESSORY KIT	
- 68882	Plastic Box	1
- 71220	Handling Tool	1
- 71291	Specimen Pin Support Disk	1
- 73230	Locking Screws	2
- 74290	Hex Driver, 1/16"	1

(ACCESSORY KIT CONTINUED)

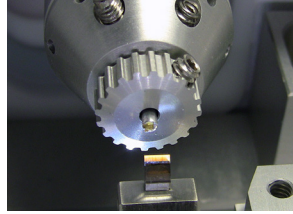
- 74291	Hex Driver, 5/64"	1
- 74292	Hex Driver, 3/32"	1
- 77447-3	Arm Heat Sink	2
- 74406-4	Knife Heat Sink	1
- 74827	Static Line Mounting Assembly	1
- 71130	Spacer, Cryotrim, 6mm	1
- 71170	Spacer, Cryotrim, 3mm	1
- 74246	Spacer, Cryotrim, 1mm	1
- 74245	Spacer, Cryotrim, 0.5mm	1
- 70863	Specimen Pins, 6.5mm, 10pk.	1
- 70862	Specimen Pins, 3mm, 10pk.	1
- 70861	Specimen Pins, 2mm, 10pk.	1
- 71091	Pin Adapter, 3mm	1
- 71092	Pin Adapter, 2mm	1
- 74414	Knife Holder, 2 Glass Knives	1
- 74417	Knife Holder, Diamond Knife	1
- 74420	Knife Holder, 12mm Glass Knife	1
- 74470	Knife Holder, Diamond and Glass Knife	1
- 71292	Flat Specimen Clamp	1
- 50526	Fuse, 5A, 250V, 5mm x 20mm	2
- 74996-2	Cable, Backlight, 4 pin	1

<u>PART #</u>	<u>DESCRIPTION</u>									
CRYOSECTIONING SPECIMEN HOLDERS										
- 70861	Specimen pins, 2mm. Package of 10 aluminum, slotted on one end.									
- 70862	Specimen pins, 3mm. Package of 10 aluminum, slotted on one end.									
- 70863	Specimen pins, 6.5mm. Package of 10 aluminum, cross-slotted on one end.									
- 71091	Pin adapter for 3mm diameter pins (P/N 70862) and 6.5mm diameter pins (P/N 70863).									
- 71092	Pin adapter for 2mm diameter pins (P/N 70861)									
- 71101	Torme flat specimen vise									
- 71101-HPM	Torme flat specimen vise holder Adapted for 3mm type A/B specimen carrier sandwich, supplied with 71180 holder and 71181 mounting dish.									
- 71180	Flat specimen clamp holder. For loading specimens into P/N 71101 and P/N 71101- HPM.									
- 71181	Mounting dish for loading specimens under LN2.									
- 71291	Specimen pin mounting disc. Holds specimen pins for mounting specimens under stereomicroscope.									
- 71292	Flat specimen clamp for specimens 4mm x 8mm x 6mm (no teeth, good for paper)									
- 74262	Flat specimen clamp, conical, for specimens 4mm x 5mm x 6mm (jaws have teeth for pellets)									
- 74987	Chuck tightening tool. For use with P/N 74990 and/or P/N 74994.									
- 74990	CEMOVIS cryosectioning chuck with collet holder for 650µm diameter specimen tube.									
- 74994	CEMOVIS cryosectioning chuck for 3mm diameter specimen carriers.									
- 79066	AFM sample chuck, threaded, clamps 12mm diameter sample discs Commonly used in Atomic Force Microscopes. Disc is clamped by a threaded locking nut.									
- 79070	AFM sample holder, magnetic, for use with 8-10mm diameter sample discs Commonly used in Atomic Force Microscopes. Disc is secured by a strong SmCo magnet.									
CRYOSECTIONING KNIFE HOLDERS										
- 74414	Dual glass knife holder (holds 2 x 6mm wide knives and trimming tool)									
- 74417	Diamond knife holder									
- 74420	Glass knife holder									
- 74470	Diamond knife and glass knife holder									
OTHER CRYOSECTIONING ACCESSORIES										
- 71282	Cryosectioning Kit: <table border="0" style="width: 100%;"> <tr> <td>- Pick Up Loop</td> <td>- Embedding Loop</td> <td>- Eyelash Probe</td> </tr> <tr> <td>- Specimen Pin Stand</td> <td>- Parafilm</td> <td>- Forceps (3 sets)</td> </tr> <tr> <td>- Microscapel</td> <td>- Custom glass slides</td> <td>- Specimen pins (qty.30)</td> </tr> </table>	- Pick Up Loop	- Embedding Loop	- Eyelash Probe	- Specimen Pin Stand	- Parafilm	- Forceps (3 sets)	- Microscapel	- Custom glass slides	- Specimen pins (qty.30)
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- Specimen Pin Stand	- Parafilm	- Forceps (3 sets)								
- Microscapel	- Custom glass slides	- Specimen pins (qty.30)								
- 74189	Grid holding device with grid transfer capsule for Gatan cryotransfer holder									
- 74449	Cryochamber cover									
- 74802	Environmental Cryo Chamber Transparent acrylic chamber surrounding the cryo ultramicrotome system, with front access for the operator. Minimizes environmental disturbances during critical applications such as cryo ultra-thin sectioning of frozen hydrated specimens for CEMOVIS (Cryo-Electron Microscopy of Vitreous Sections)									
- 74827	Static line ionizer mounting assembly Includes grounding wires, for mounting the static line ionizer to the LN Ultra chamber									

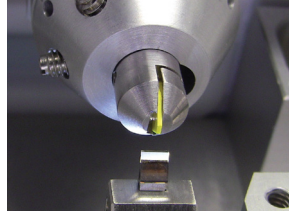
SPECIMEN HOLDERS



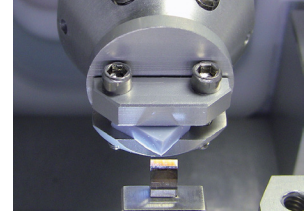
71091 - 3MM PIN ADAPTER



71092 - 2MM PIN ADAPTER



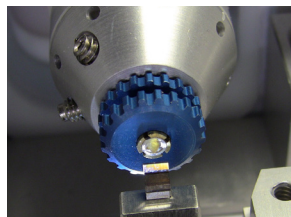
71101 - TORME FLAT SPECIMEN VISE



71292 - FLAT SPECIMEN CLAMP



74990 - CEMOVIS CHUCK, 650µM



74994 - CEMOVIS CHUCK, 3MM



79066 - AFM CHUCK, 12MM,
(THREADED)



79070 - AFM HOLDER, 8-10MM,
(MAGNETIC)

KNIFE HOLDERS



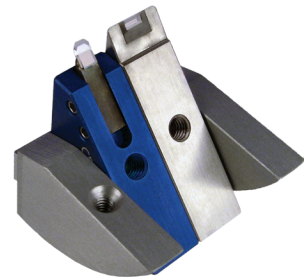
74414 - DUAL GLASS KNIFE HOLDER



74417 - DIAMOND KNIFE HOLDER



74420 - GLASS KNIFE HOLDER

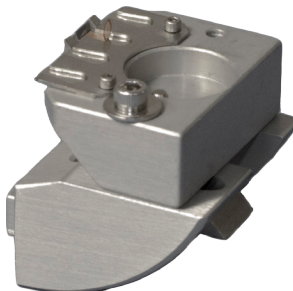


74470 - DIAMOND AND GLASS KNIFE HOLDER

OTHER ACCESSORIES



71291 - SPECIMEN PIN MOUNTING DISK
(SHOWN WITH 2MM SPECIMEN PINS)



74189 - GRID HOLDING DEVICE



74827 - STATIC LINE IONIZER
MOUNTING ASSEMBLY



74987 - CHUCK TIGHTENING TOOL
(FOR P/N 74990 AND P/N 74994)