

LN Ultra



LN Ultra shown mounted on
PowerTome XL ultramicrotome
and Anti-Vibration Table

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 -180°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 15.5 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 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 liquid nitrogen 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

SPECIFICATIONS

- Temperature Range +40°C to -180°C
- Temperature Stability +/- 0.1°C
- LN2 Dewar Volume 15.5L
- Operating Time Up to or over 9 hours

INCLUDES

- 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
- Four knife holders enable the use of a variety of glass and diamond knives, tungsten carbide and diamond trimming tools
- 15.5 liter liquid nitrogen dewar with cap
- Liquid nitrogen pump (non-pressurized), with insulated transfer line and pump stand

ACCESSORIES AVAILABLE FOR PURCHASE

Cryosectioning Specimen Holders

- Specimen pins, 2mm. Package of 10 aluminum, slotted on one end.
- Specimen pins, 3mm. Package of 10 aluminum, slotted on one end.
- Specimen pins, 6.5mm. Package of 10 aluminum, cross-slotted on one end.
- Pin adapter for 3mm diameter pins and 6.5mm diameter pins.
- Pin adapter for 2mm diameter pins.
- Tormer flat specimen vise.
- Tormer flat specimen vise holder.
- Adapted for 3mm type A/B specimen carrier sandwich, supplied with holder and mounting dish.
- Flat specimen clamp holder.
- Mounting dish for loading specimens under LN₂.
- Specimen pin mounting disc. Holds specimen pins for mounting specimens under stereomicroscope.
- Flat specimen clamp for specimens 4mm x 8mm x 6mm (no teeth, good for paper).
- Flat specimen clamp, conical, for specimens 4mm x 5mm x 6mm (jaws have teeth for pellets).
- Chuck tightening tool.
- CEMOVIS cryosectioning chuck with collet holder for 650µm diameter specimen tube.
- CEMOVIS cryosectioning chuck for 3mm diameter specimen carriers.
- AFM sample chuck, threaded, clamps 12mm diameter sample discs.
Commonly used in Atomic Force Microscopes. Disc is clamped by a threaded locking nut.
- 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

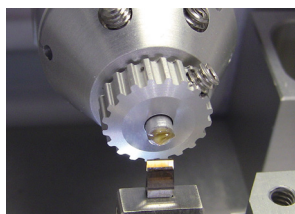
- Dual glass knife holder (holds 2 x 6mm wide knives and trimming tool)
- Diamond knife holder
- Glass knife holder
- Diamond knife and glass knife holder

Other Cryosectioning Accessories

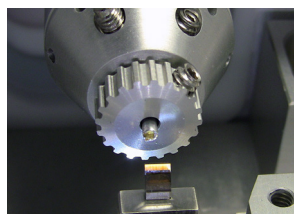
- Cryosectioning Kit:
 - Pick Up Loop
 - Embedding Loop
 - Eyelash Probe
 - Specimen Pin Stand
 - Parafilm
 - Forceps (3 sets)
 - Microscalpel
 - Custom glass slides
 - Specimen pins (qty 30)
- Grid holding device with grid transfer capsule for Gatan cryotransfer holder.
- Cryochamber cover.
- Environmental 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).
- Static line ionizer mounting assembly.
Includes grounding wires, for mounting the static line ionizer to the LN Ultra chamber.

ACCESSORIES AVAILABLE FOR PURCHASE (continued)

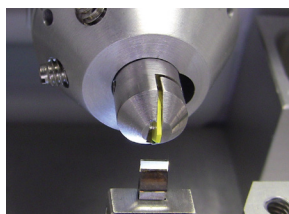
SPECIMEN HOLDERS



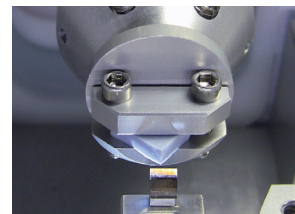
3mm Pin Adapter



2mm Pin Adapter



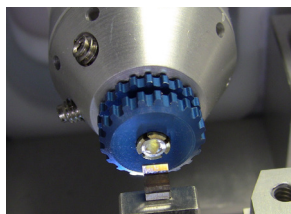
Torme Flat Specimen Vise



Flat Specimen Clamp



CEMOVIS Chuck, 650µm



CEMOVIS Chuck, 3mm



AFM Chuck, 12mm,
(Threaded)



AFM Holder, 8-10mm,
(Magnetic)

KNIFE HOLDERS



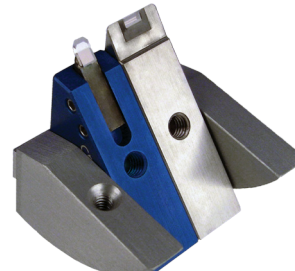
Dual Glass Knife Holder



Diamond Knife Holder



Glass Knife Holder

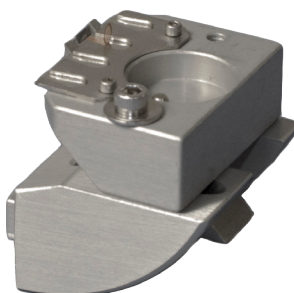


Diamond and Glass Knife Holder

OTHER ACCESSORIES



Specimen Pin Mounting Disk
(shown with 2mm specimen
pins)



Grid Holding Device



Static Line Ionizer
Mounting Assembly



Chuck Tightening Tool