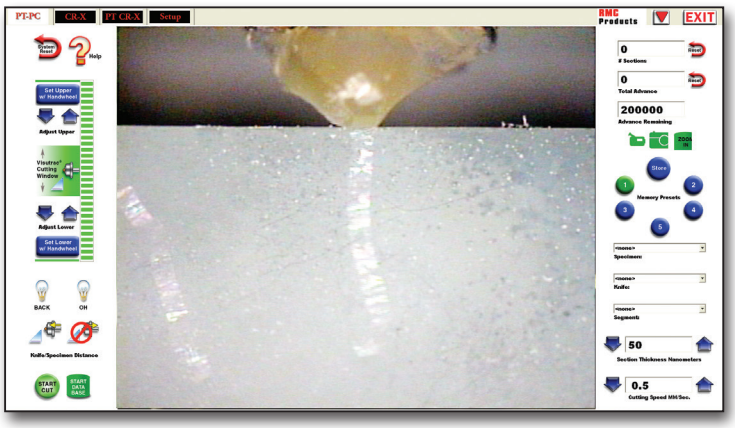
RMC Products
by Boeckeler

Microscopy

Sample Prep Solutions

TEM, SEM, AFM, TOFMS, LM, and CEMOVIS



Innovative Products, Creative Solutions

PowerTome X

PowerTome XL

PowerTome PC

New! SmartTome™

CRX CryoSystem

Precise • Powerful • Easy to Use

The RMC line of ultramicrotomes has the longest pedigree in the industry. When they became a part of Boeckeler Instruments, a company with over 60 years experience manufacturing precision instruments, the stage was set for us to add our expertise to an already excellent product. The result:

PowerTome X and PowerTome XL

Smooth . . .

We designed a new cutting engine with exceptional levels of precision tolerance.

Powerful . . .

These are the only ultramicrotomes with the patented Power Drive® technology. When gravity fails, the powered cutting stroke has enough strength to cut through even hard, inhomogeneous specimens.

While we were at it, we added . . .

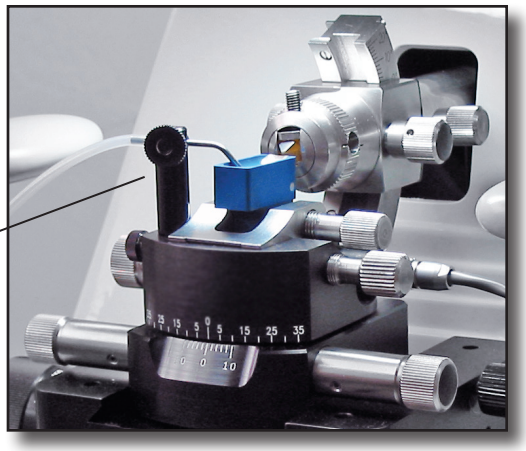
- **Self Lubricating Pivot Joints**
- **Frictionless Bearings**

Keeping your system smooth running, longer.

Bright LED backlight for critical approach
LED specimen transillumination for localization

Handrests

Optional Water Trough Filler



Specimen Orientation Mount *(Formerly Arc Segment Mount)*

Micrometer Adjustable Knife Stage

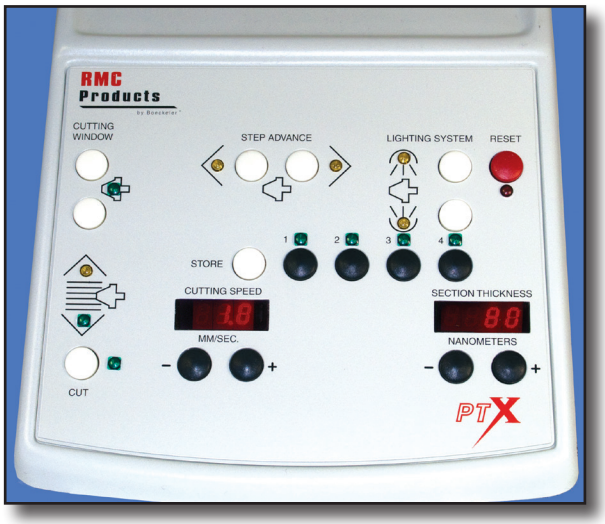
Optional Photostereomicroscope

Total magnification 6.5 to 50x with 10x eyepieces

50/50 beam splitter

The stereomicroscope provides sharp, distortion-free 3D images with:

- 7.7 to 1 zoom range with click stops
- 10x W-PL eyepieces as standard, providing 23mm field of view
- Total magnification 6.5 to 50x with 10x eyepieces
- Eyepieces adjustable to suit individual requirements with interocular distance from 55mm to 75mm
- Parfocal operation with focusing oculars for spectacle wearers

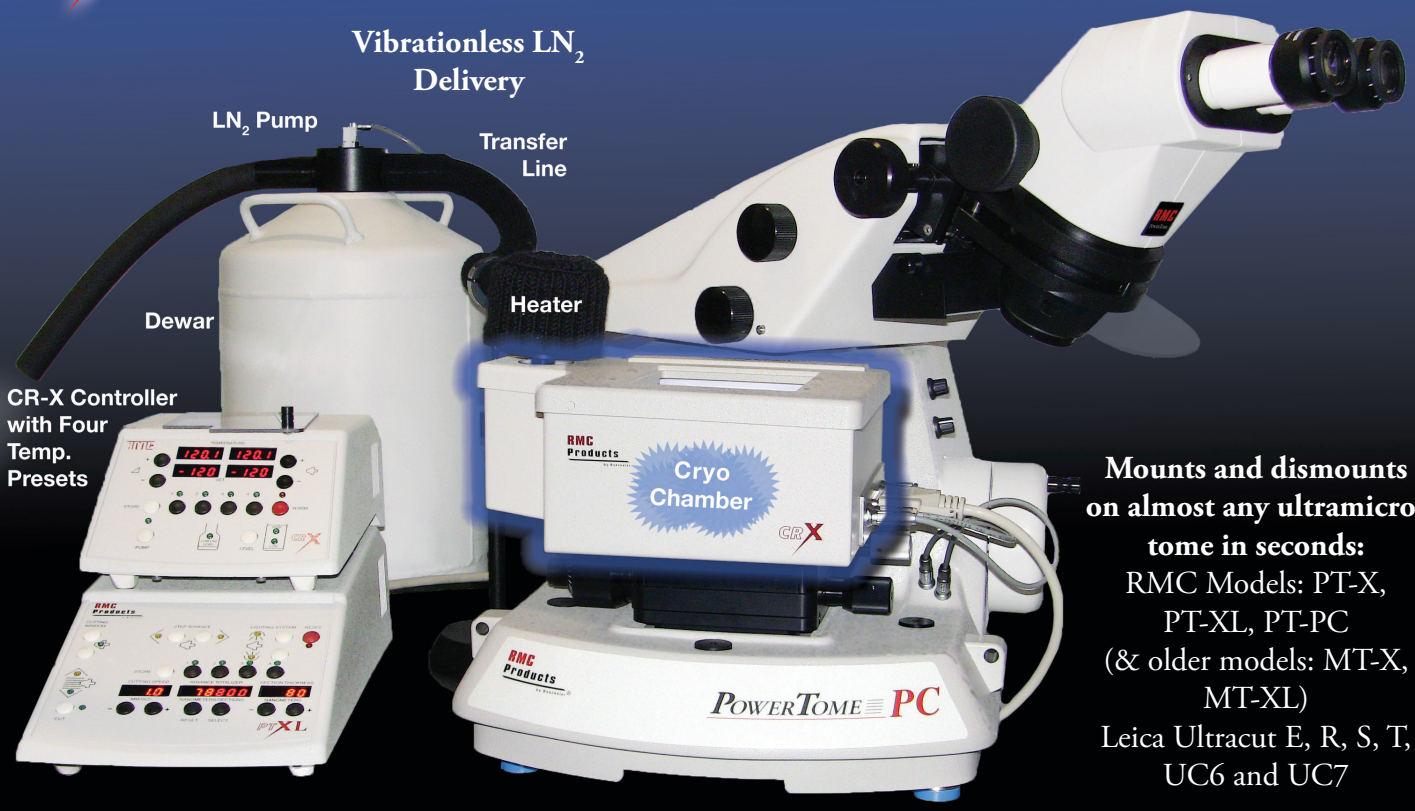


Controller for PowerTome X

Controller for PowerTome XL

CR-X Cryosystem

The CR-X is an Insulated and Externally Heated Cryo Chamber with Internal Chamber Illumination and Backlight



Mounts and dismounts on almost any ultramicrotome in seconds:
RMC Models: PT-X, PT-XL, PT-PC
(& older models: MT-X, MT-XL)
Leica Ultracut E, R, S, T, UC6 and UC7

Lowest LN_2 consumption, 9 liters lasts about 11 hours

"Through-the-Wall" Arm

Set-up in minutes

"No Wait" removal from microtome, even when cold

Side fill for easy access to chamber

Temperature stability ± 0.1 C

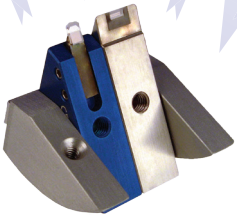
Four knife holders included for flexible combination of glass and diamond knives and trimming tools

Temperature range +35C to -180C

Excellent thin section quality

Holds two glass or diamond knives and trimming tool

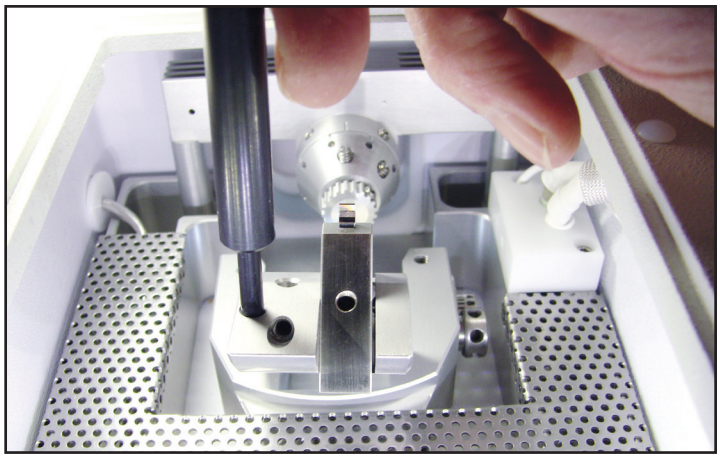
Thick Glass Holder
74420

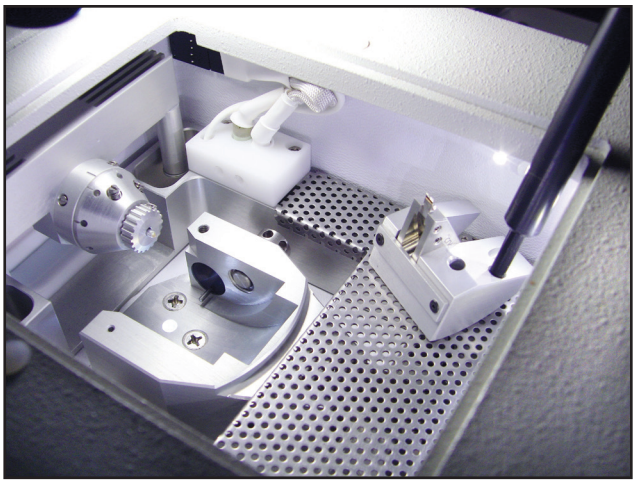


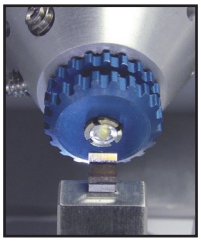
Diamond Knife w/ Trimming Tool
74470

Dual Glass Holder
74414

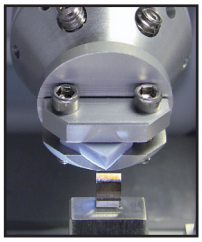
Before and After Cryosectioning







74994



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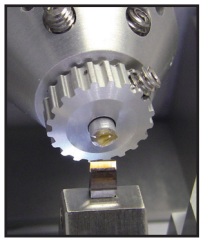
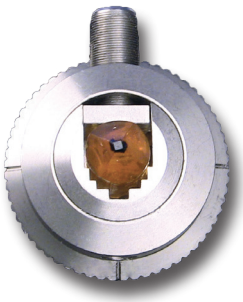
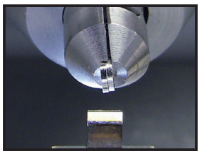
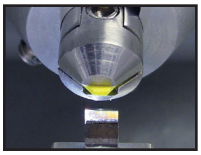


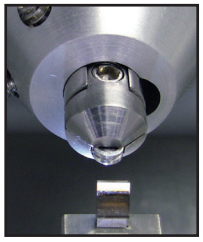
71091/70862



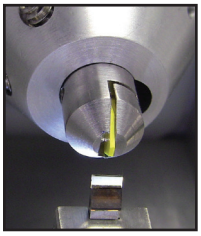
Round Block Sample Holder 75413S



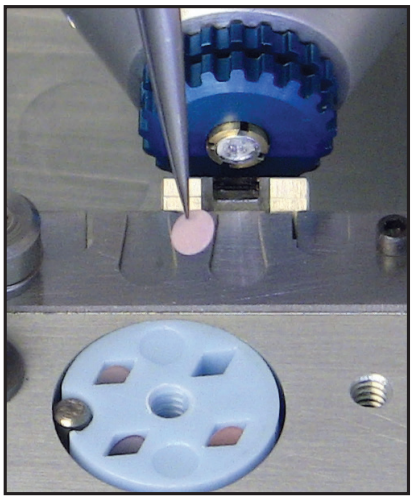




71101-3mm



71101



74189
Grid Holding Device with Grid Cryo Transfer Capsule

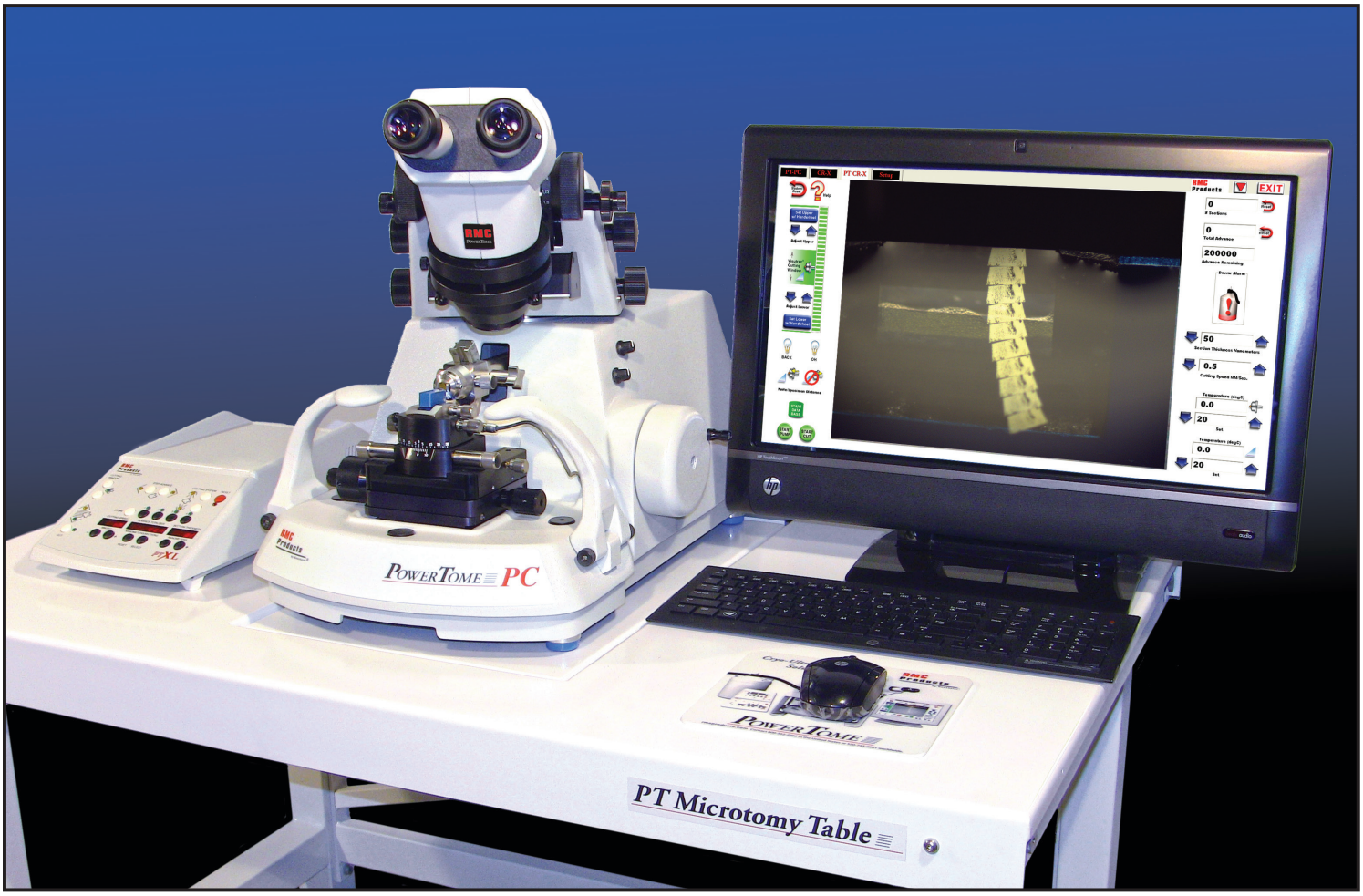
Some Popular Optional Accessories

Part #	Description
50285	Tungsten carbide cryo trimming tool
50286	Diamond cryo-trimming tool
70862	Specimen pins, 3mm
71091	Pin adapter for 3mm dia. pins
71101	Torme flat specimen vise
71101-3mm	Torme vise modified for 3mm diameter HPM spec. carrier
71180	Flat specimen clamp holder, for loading specimens into P/N 71101 above
71282	Cryosectioning kit including: loops, microscalpels, forceps, specimen pin holders, and all accessories required for the Tokuyasu technique.
71292	Flat specimen clamp for specimens 4mm x 8mm x 6mm (no teeth, good for paper)
74189	Grid holding device
74262	Flat specimen clamp, conical, for specimens 4mm x 5mm x 6mm (jaws have teeth for pellets)
79066	AFM sample chuck, threaded, clamps 12mm dia. 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 dia. sample discs, commonly used in Atomic Force Microscopes. Disc is secured by a strong SmCo magnet.
74990	CEMOVIS cryosectioning specimen chuck with collet holder for 650µm diameter tube, high pressure frozen samples
74994	CEMOVIS cryosectioning specimen chuck with collet holder for 3mm diameter type A/B specimen carriers with HPF samples
74987	Tightening tool for use with 74990/74994

CRYO IN THE SUN ARIZONA

Need to learn the basics of cryoultramicrotomy quickly? We present a week-long, hands-on seminar twice a year at our headquarters in Tucson, Arizona. It's a memorable place to visit while you receive expert guidance.

PowerTome PC



Now with:

SmartTome™

Hybrid Control System

- Large HD LCD Touch Screen Display
- Digital Tactile Controller

Computer-based Control, Database and Video Monitor System

Touchscreen interface simplifies operation and helps you capture valuable information.

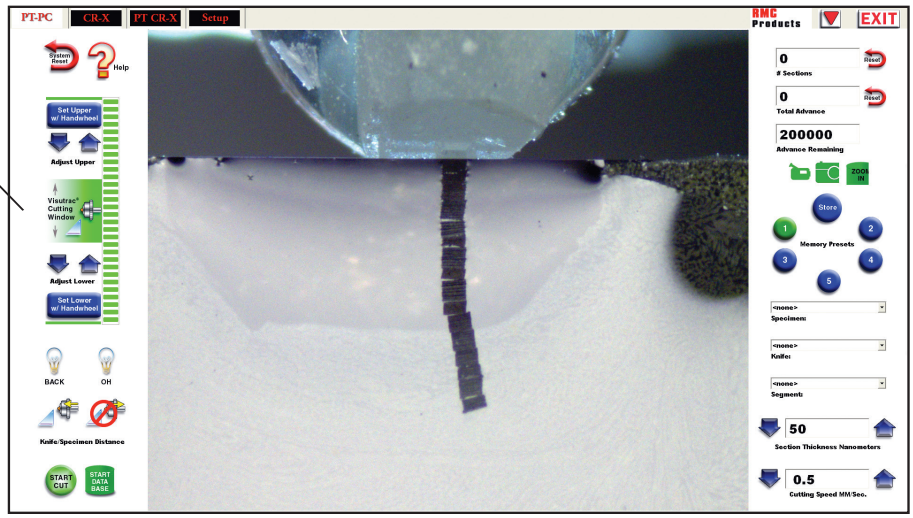
- **Large, Simple, Graphic Interface** - *All commands are visible and controllable using the all-in-one PC system with touch screen monitor.*
- **Easy to Read** - *There's never a question as to what's being displayed, even at a distance.*
- **Report Generator** - *Easily capture and print reports based on the materials you're sectioning.*
- **On-screen Help** - *With WorldWide Web-like simplicity.*
- **Video Monitoring** - *This option uses the center of your touch screen monitor to display the sectioning process in real time. It can greatly reduce the back and neck strain associated with hovering over the microscope. It's even large enough to allow the operator to monitor sectioning from a distance.*

Video Package includes
USB Camera Mounted on Tri-Noc

Touchscreen Control with or without Video Monitoring

Large, Simple, Intuitive Controls

Cutting Zone set by Unique "Visutrac" control, which can be adjusted at any time, even while sectioning. Cutting zone can also be set by positioning specimen & activating upper & lower cutting zone Icons.



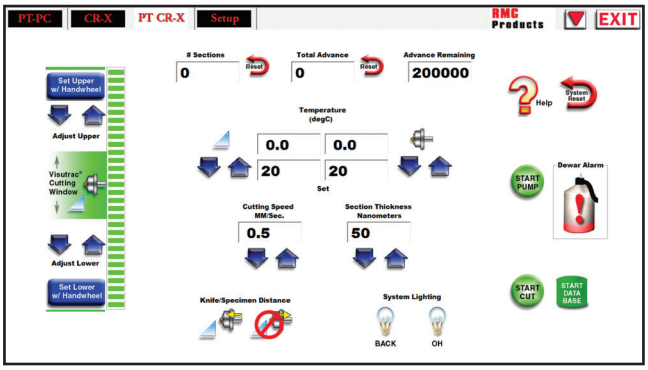
Video Monitoring System

Two Models:

21.5" All-in-one PC Touch Screen Monitor with Video Package

SmartTome™

The SmartTome Hybrid Control System is included with both packages, giving you intuitive, simple sectioning preparation using the large, touch screen icons, plus the tactile controller, which facilitates the sectioning process without requiring you to move your focus away from the microscope.



20" All-in-one PC Touch Screen Monitor without Video Package

PowerTome-PC with CR-X Cryosystem

Integrated Data Base Functions

Let the computer capture your sectioning statistics!

- Information is recorded with every stroke.
- Monitor activity with little effort.
- Track knife usage.

Data is recorded by session.

Fields Include:

- Section Number
- Section Thickness
- Cumulative Advance
- Cutting Speed
- Knife Temperature (Cryo)
- Specimen Temperature (Cryo)
- User Name
- Knife Used
- Knife Use Statistics
- Date & Time

Sample Report:

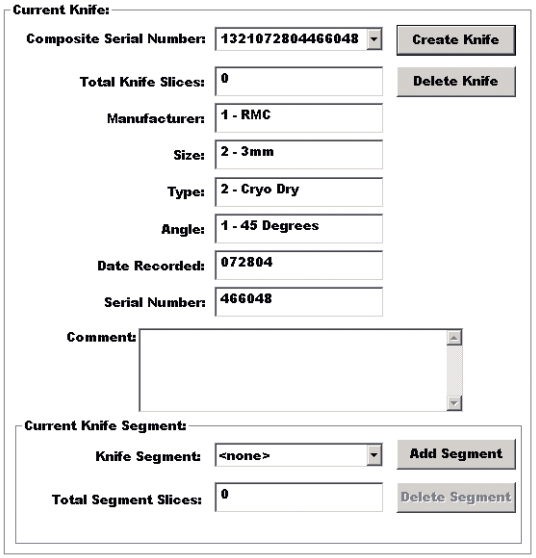
```
Report for Session Session 423
Session: Session 423
Institution: B4 Labs
Date: 07/26/2004
Time: 1432
Material Name: RubberBlend642
Comment:

Sec   Sec     Cum   Cut   Temp(Kn)  Temp(Sp)       User Name        Knife S/N          Date : Time
Nbr   Thick   Adv   Spd     (degC)    (degC)                                    MM/DD/YY : HH:MM:SS
      (nm)    (nm) (mm/sec)
   1    70      70  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:32:40
   2    70     140  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:32:47
   3    70     210  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:32:51
   4    70     280  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:32:55
   5    70     350  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:32:59
   6    70     420  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:46:55
   7    70     490  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:46:57
   8    70     560  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:46:59
   9    70     630  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:01

  10    70     700  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:03
  11    70     770  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:05
  12    70     840  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:07
  13    70     910  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:09
  14    70     980  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:11
  15    70    1050  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:12
  16    70    1120  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:14
  17    70    1190  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:16
  18    70    1260  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:18
  19    70    1330  1.0       0.0       0.0             ArtS    122207260400335A/ 07/26/04 : 14:47:19
end-of-report
```

Reports Available On-Screen, Printed, or in Text File Format

Extend the Life of Your Diamond Knives



Knife Setup and Statistics Window

Other Product Solutions

High Pressure Freezer HPM 010

Shown with Optical Workstation

- The original and proven high pressure freezing machine
- Over 100 installations world-wide
- More than 400 scientific publications
- Well frozen specimens up to 200µm thickness and 2mm diameter, without the use of cryoprotectants
- Mobile on 4 large-diameter caster wheels

Automated TEM Stainer QG-3100

Fast Reliable Reproducible

While Minimizing.. Sample Contamination Solution Waste

- Closed flow system provides clean conditions and exclusion of air
- Staining procedures are reliable and reproducible
- Exposure to staining solutions is minimized
- Extremely low operation costs
- Individual staining procedures may be easily configured
- Simple maintenance due to freely accessible tubing and valves
- 40 grids per run
- Approximately 9ml staining solution per run

Glass Knife Maker GKM2 w/Readout for Controlled Breaks

- Solid, Heavy Design
- Easily Produces Consistent, Controlled Breaks
- Digital Readout Displays Load Applied to Glass as Breaking Arm is Moved
- Produces Knives Up to 12mm Wide
- "Balanced Break" Method for the Sharpest Knives
- Micrometer Positioners
- Built-in Mechanical Stops for Easy Positioning
- Precision Mechanism Supports "Slow-Break" Technique

Specifications

PowerTome X PowerTome XL

- Autothin sectioning from 5 nm
- Autothick sectioning to 5 microns(X), 10 microns(XL)
- Digital section counter - XL
- Feed totalizer - XL
- 15mm cutting stroke
- Cutting speed range 0.1-49.9 mm/sec.
- Variable return speed selection over entire cutting speed range
- Automatic feed 200 microns
- Manual feed 50mm
- 4 Memory channels
- Built-in self diagnostic programs
- Compact two piece design with separate control unit
- Built-in hand rests for maximum comfort when specimen trimming & collecting sections
- Advanced technology multi-level vibration isolation system
- High stability mechanical drive systems for both specimen advance and cutting
- High precision micrometer knife stage
- Fully adjustable “scan and tilt” stereomicroscope
- LED backlighting and specimen transillumination spotlight

Supplied complete with:

- Specimen orientation mount*(Formerly Arc segment mount)*
- Stereomicroscope
- Self locking Positrac© knife stage
- Two specimen holders (transilluminating)
- Backlight cable
- Transillumination cable
- Glass knife support (polished)
- Wooden accessory box
- Trimming block and post
- Footswitch
- Breath shield
- Control unit
- Power cord
- Interconnect cables
- Dust cover
- Spare lamps and fuses

Electrical: *input*: 100 - 240 Vac 50/60 HZ
output: 12 VDC 55 watts maximum
Meets UL, CSA & CE requirements

Dimensions:	W	x	H	x	D	*mm*
Controller	194		102		375	
Microtome	394		559		648	
Shipping						
Main Unit	559		635		839	72 kgs
Accessories	458		458		458	15.5 kgs

Specifications

PowerTome PC

- Autothin sectioning to 5 nm
- Autothick sectioning to 15 microns
- Digital section counter
- Feed totalizer
- 15mm cutting stroke
- Cutting speed range 0.1-100 mm/sec
- Variable return speed selection over entire cutting speed range
- Automatic feed 200 microns
- Manual feed 50mm
- 5 Memory channels
- Built-in self diagnostic programs
- Compact two piece design with separate control unit
- Built-in hand rests
- Advanced technology multi-level vibration isolation system
- Dual foot switch control for switching from trim to cut or for semi-thin to ultra-thin sectioning
- High stability mechanical drive systems for both specimen advance and cutting
- High precision micrometer knife stage
- Fully adjustable "scan and tilt" stereomicroscope
- Variable position lighting with LED backlighting and specimen transillumination
- Specimen viewing mirror
- Water trough filler with pump & reservoir

SmartTome™

Unique Hybrid Control System with:
1) Large, HD Video Resolution, Touch Screen Display
2) Digital Tactile Controller

Supplied complete with:

- All-in-One compact PC system
- Digital tactile controller
- Large HD touch screen display
- Specimen orientation mount (formerly arc segment mount)
- Stereomicroscope
- Self locking "Positrac" knife stage
- Two universal specimen holders (transilluminating)
- Backlight cable
- Transillumination cable
- Glass knife support (polished)
- Wooden accessory box
- Trimming block and post
- Two specimen holder adapters and wrenches
- Breathshield
- Control unit
- Power cord
- Interconnect cables
- Dust cover
- Spare lamps and fuses

Standard Hybrid-Control Package

- All-in-one ***without video***, slim design, compact computer system, with the following, or similar specifications:
  - 2.4 GHz 64 bit dual core processor
  - 20″ touchscreen HD LCD display
  - 3GB RAM
  - 6 USB ports
  - Slim tray optical DVD burner
  - 500GB hard drive
  - Wireless keyboard & mouse
  - Windows 7 Home Premium operating system
- Separate tactile control unit with digital displays of cutting speed, section thickness, number of sections cut & specimen advance
- Specimen orientation mount (formerly arc segment mount)
- Stemi 2000 stereomicroscope with 7.7:1 zoom range, 6.5X to 50X magnification with 10X wide field (23mm) eyepieces
- Self-locking Positrac™ lower knife stage

Deluxe Video Package

- Hybrid-Control package ***with video***, slim design, compact computer system, with the following, or similar specifications:
  - 3.3 GHz processor
  - 21.5″ full HD touchscreen controller/monitor
  - 4GB RAM
  - 4 USB ports
  - Slim tray optical DVD burner
  - 1TB hard drive
  - Wireless keyboard & mouse
  - Windows 7 Home Premium operating system
- Separate tactile control unit with digital displays of cutting speed, section thickness, number of sections cut & specimen advance
- Specimen orientation mount (formerly arc segment mount)
- Stemi 2000CS photostereomicroscope with 50/50% beam splitter, 7.7:1 zoom range, 6.5X to 50X magnification with 10X wide field (23mm) eyepieces
- Self-locking Positrac™ lower knife stage
- 1.3 MP color camera

RMC Ultramicrotome Models
A Comparison of Unique Features

Feature	PT-X #75500	PT-XL #75498	PT-PC #75840	PT-PC with Video #75841Z
Controllers	Tactile only	Tactile only	Computer and tactile	Computer and tactile
Computer	No	No	20 in. Touch screen (50.8cm)	21.5 in. Touch screen (54.6cm)
Section Counter	No	On controller	Controller & monitor	Controller & monitor
Advance Totalizer	No	On controller	Controller & monitor	Controller & monitor
Section thickness	0.1 to 4999nm	0.1 to 9999nm	0.1nm to 15µm	0.1nm to 15µm
Cutting Speed	0.1 - 49.9mm/sec	0.1 - 49.9mm/sec	0.1 - 100mm/sec	0.1 - 100mm/sec
Memory channels	4	4	5	5
Stereomicroscope	Zeiss Stemi 2000	Zeiss Stemi 2000	Zeiss Stemi 2000	Zeiss Stemi 2000CS Photostereomicroscope
Camera	No	No	No	1.3 Mb USB camera
Video display	No	No	No	Full-time on touchscreen
Report Generator	No	No	Yes-with data base	Yes-with data base
Diagnostics & Set-up	Diagnostics only	Diagnostics only	Both on computer	Both on computer
Help Menu	No	No	Yes-on computer	Yes-on computer
Skype-based tech support	No	No	Yes-on computer	Yes-on computer
Cutting window	LED indicators	LED indicators	Visutrac Display on monitor	Visutrac Display on monitor
Cutting window settings	Control buttons	Control buttons	Buttons & touch screen	Buttons & touch screen
Foot switch	No	Yes	Yes - dual	Yes - dual

Features you won't find on other systems!	Benefits
Full PC control with integrated 21.5" Touch Screen LCD color monitor/controller interface with fast 3.3GHz processor	» Easily replaced by user with 'off-the-shelf' components from local electronic stockists » Easy to see & touch control icons » Camera image displayed directly on touchscreen
SmartTome™ Hybrid Control System: Touch screen(above) plus tactile controller with raised bubble switches and digital displays	» position either side of PowerTome for most convenient operation » 'touch' control without moving head away from stereomicroscope
Ergonomic stereomicroscope holder with constant radial focus eucentric tilt control	» stereomicroscope stays in focus when tilted around specimen axis » tilt, focus and zoom controls conveniently positioned for easy & comfortable access » stereomicroscope position adjusts to suit the operator
Unique "scan & tilt" control	» single handed adjustment to rapidly scan knife edge & sectioning area
Bright overhead diffuse fluorescent lamp moves with stereomicroscope	
High Precision, Micrometer Driven, Manually Operated Knife Stage	» For safe, precise, manually controlled knife to specimen approach » 12mm precision N-S advance » 50mm gross advance » 28mm E-W travel
Dual Foot Switch Control	» Switch between preset & stored semi-thin and ultra-thin sectioning parameters (use memory channels 1 and 4) » Hands free control of cutting function
Built-in calibration and service diagnostics	» Instantly confirm port configurations and functionality » Simplifies maintenance procedures » CR-X diagnostics included
Power Driven Cutting Stroke & Mechanical Advance	» Section large blocks and hard specimens » Eliminate 'stalling' common with gravity drive systems » 200µm specimen advance

RMC Products
by Boeckeler

www.rmcproducts.com

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