

ATUMtome



The New Standard In 3D Reconstruction Sample Preparation

BENEFITS

- Do not lose one single section - collect hundreds to thousands of sections on a continuous tape, uninterrupted
- Non-destructive preparation - sections can be reviewed many times at varying magnification. Use low magnification for locating regions of interest, then zoom in for higher resolution imaging. This saves time, focusing only on your regions of interest
- Sections available for years into the future for processing, post-staining, immunogold labeling and correlative imaging.
- Determine sample viability early on in the process, so you don't waste valuable time cutting and imaging a problem sample.
- Allows correlative microscopy for localization and then ultrastructural imaging
- Time saving - short pixel dwell time for fast detection during SEM imaging
- Uses standard sample preparation techniques and resins
- Various Kapton tape coatings available to prevent section charging
- Extremely cost effective method of 3D imaging, from hundreds to thousands of sections
- Can be upgraded to the PT3D, featuring 1 mm of uninterrupted sectioning

DESCRIPTION

The ATUMtome's tape collection system (ATUM) was developed at Harvard University, where Professor Jeff Lichtman, MD and his team designed the instrument to collect ultrathin sections to help reconstruct the brain's neural pathways; a precursor to one day mapping the entire human brain.

The RMC ATUMtome is a unique system for collecting sections on a continuous tape. Typically, a resin-embedded specimen is used on the ultramicrotome to cut serial sections that then float on a surface of the water in the diamond knife trough. The ATUMtome moves a continuous ribbon of tape through this water trough, automatically removing the serial sections from the water surface in sequence. After the sections are collected, the tape is mounted onto a silicon wafer substrate or glass slides. The sections are now ready for imaging with a scanning electron microscope or via other microscopy techniques.

APPLICATIONS

Many current users are working with the ATUMtome for neuroscience research, but this is far from the only application. Research into biological systems and cell organelles as well as new materials research are being imaged using this array tomography technique. The ATUMtome's unique ability to collect hundreds to thousands of sections on a continuous tape opens the door for use in many serial section applications, some of which are yet to be explored.

The system can be used in correlative microscopy applications involving, for example, light and scanning electron microscopy to identify regions of interest and map nanoparticles inside organs and tumors. It can also benefit users who want to image whole cells and correlate the 3D distribution of specific proteins within these cells. Stored sections can be immunolabeled multiple times for examination under epifluorescence illumination.

As research continues to transition from 2D to 3D imaging, there is a growing requirement to increase efficiency in imaging thousands of sample sections. By addressing this need, as well as the need to retain samples for future analysis, the ATUMtome is an exciting tool to consider. This is especially so among scientists who have wanted to carry out 3D reconstruction but were held back because of the impractical effort it would take to handle the many sections required.

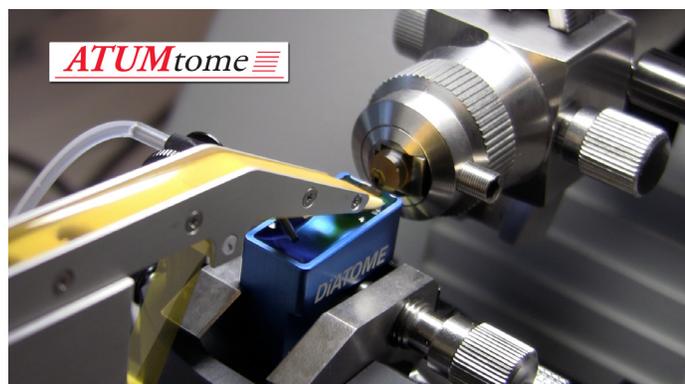
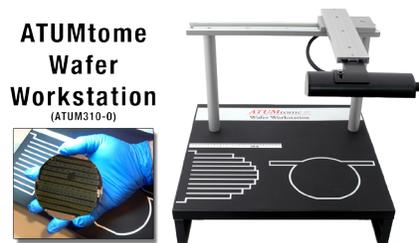
SUPPLIED COMPLETE WITH

- ATUM continuous tape feed mechanism with PC control software
- PowerTome PTPCZ with HD Video Package
- Air-activated anti-vibration table with Compressor and Ergonomic lab chair
- ATUM attachment with fine control positioning of tape/section pick-up head
- 4 mm diamond knife, 35 degrees for room temperature ultra-thin sectioning
- Start-up supply of Kapton tape
- Five 4" diameter silicon wafers
- Environmental chamber
- Anti-static device
- Water level control system
- Wafer workstation

ELECTRICAL SPECIFICATIONS

- Input: 110 - 240 VAC
50/60 Hz
- Output: 255 watts

**ATUMtome
Wafer
Workstation**
(ATUM310-0)



<u>PART #</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
75841Z	PTPCZ For more info and a shipping list, see: "PTPCZ" (pg.6) and "PTPCZ Shipping List" (pg.11)	1
ATUM306	ATUM MAIN UNIT	1
- 5439	10' USB A-B Cable	1
- 56AC135	Power Supply	1
- ATUM186-3	Rail Mic Bracket	1
	ATUM ACCESSORY KIT	
- RT4-M35	Diamond Knife, 4mm, Room Temp	1
- ATUM152-0-B	ATUM Reel	5
- 74800	Anti-Static Device, 115 VAC	1
or		
74801	Anti-Static Device, 220-240 VAC	
- ATUM311-0	Anti-Static Cable Support	1
- 7122A23	Hex Key Wrench, 7/32"	1
- 1196	Wafer, 4", Mech Grade	5
- ATUM308	Tape, Kapton, Uncoated	2
- SP5-54	Wafer, 4", Single Container	5
- SP5-4-25	Carrier Box, Wafer, 25 group	1
- 77819-25	Carbon Tape, Double Sticky	1
- 36325A58	Handle, Scalpel	1
- 36325A87	Blade, Scalpel	5
ATUM310-0	WAFER WORK STATION	
- 56AC135	Power Supply	1
- ATUM183-0	Reel Support Assembly	1
75370-SP	WATER PUMP	1
- 56AC135	Power Supply	1
- 50543	Cable, USB - RS-232	1
- 61530	Tubing, Clear, 36"	1
- 75372	Trough Filler	1
- FTLL210-9	Connector, Luer-Lok	2
- 3189-3451	Syringe, 30mL	2
60617-AR	TMC ANTI-VIBRATION TABLE	1
	With Front Support Bar	
- 9870K12	ATUM Rail	1
- ATUM185-0	Spacer, 5 3/8", 3 hole	1
	Spacer, 3", 2 hole	2
- 94639A239	Spacer, Stop	2
- 50096	Socket Head Cap Screw, M4 x 35mm	7
60621	ERGONOMIC CHAIR	1

(CONTINUED)

60619	COMPRESSOR, 110V	1
or		
60620	COMPRESSOR, 220V	
74802	ENVIRONMENTAL CHAMBER	1
- 74804	ECC Frame	1
- 74803	ECC Vinyl Cover	1
- 9273K43	Tape, Velcro, 50' x 2", Black	1
- 92785A451	Screws, Set, 1/4"-28 x .25"	1
- 5497A27	Hex Drive Wrench, 1/8"	1

SHIPPING SPECIFICATIONS

- PowerTome crate:	865mm x 560mm x 660mm / 34" x 22" x 26"
	54.5kg / 120lbs
- ATUM/Accessories:	660mm x 660mm x 660mm / 26" x 26" x 26"
	45.5kg / 100lbs
- Computer:	660mm x 660mm x 305mm / 26" x 26" x 12"
	11.5kg / 25lbs
- Workstation:	355mm x 355mm x 355mm / 14" x 14" x 14"
	9.0kg / 20lbs
- Environmental chamber:	1550mm x 205mm x 205mm / 61" x 8" x 8"
	15.5kg / 34lbs
- Slide Rail:	1220mm x 100mm x 100mm / 48" x 4" x 4"
	1.8kg / 4lbs
- Compressor:	430mm x 380mm x 380mm / 17" x 15" x 15"
	19.5kg / 43lbs
- Lab chair:	685mm x 685mm x 405mm / 27" x 27" x 16"
	18kg / 40lbs
- Anti-vibration table:	1295mm x 1015mm x 940mm / 51" x 40" x 37"
	257.5kg / 566lbs
- Total weight:	432kg / 950lbs

ATUMTOME TAPE

- ATUM 308-15	Uncoated Kapton tape, 15 meters
- ATUM 308-30	Uncoated Kapton tape, 30 meters
- ATUM 308 GD-15	Uncoated Kapton tape, glow discharged 15 meters
- ATUM 308 GD-30	Uncoated Kapton tape, glow discharged 30 meters
- ATUM 312-15	Conductive Toray carbon nano tube tape (PET) 15 meters
- ATUM 312-30	Conductive Toray carbon nano tube tape (PET) 30 meters
- ATUM 313	Conductive Teijin carbon nano tube tape (PEN) - per meter
	We have reels of varying lengths, please let us know what length you want and we'll find a reel closest to your requirement; buyer will have to purchase the complete reel.

OPTIONAL EXTRAS

- Oscillating knife for reduced compression of sections
- CNT coated Kapton tape for elimination of charging