

From Eye to Insight

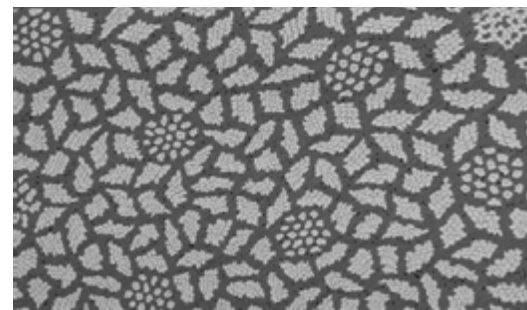
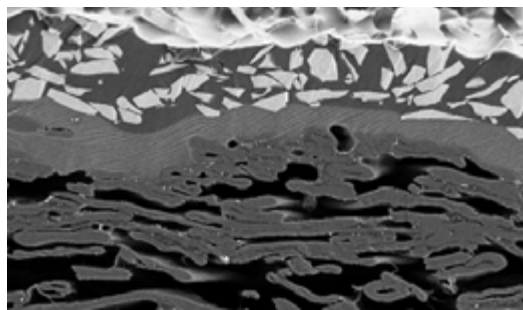
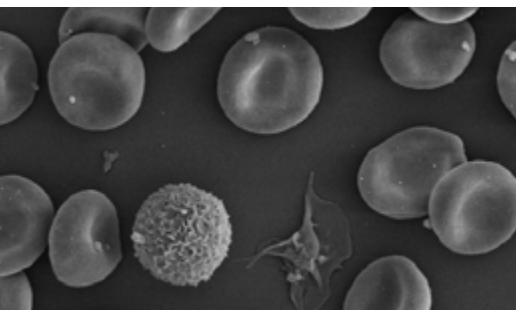
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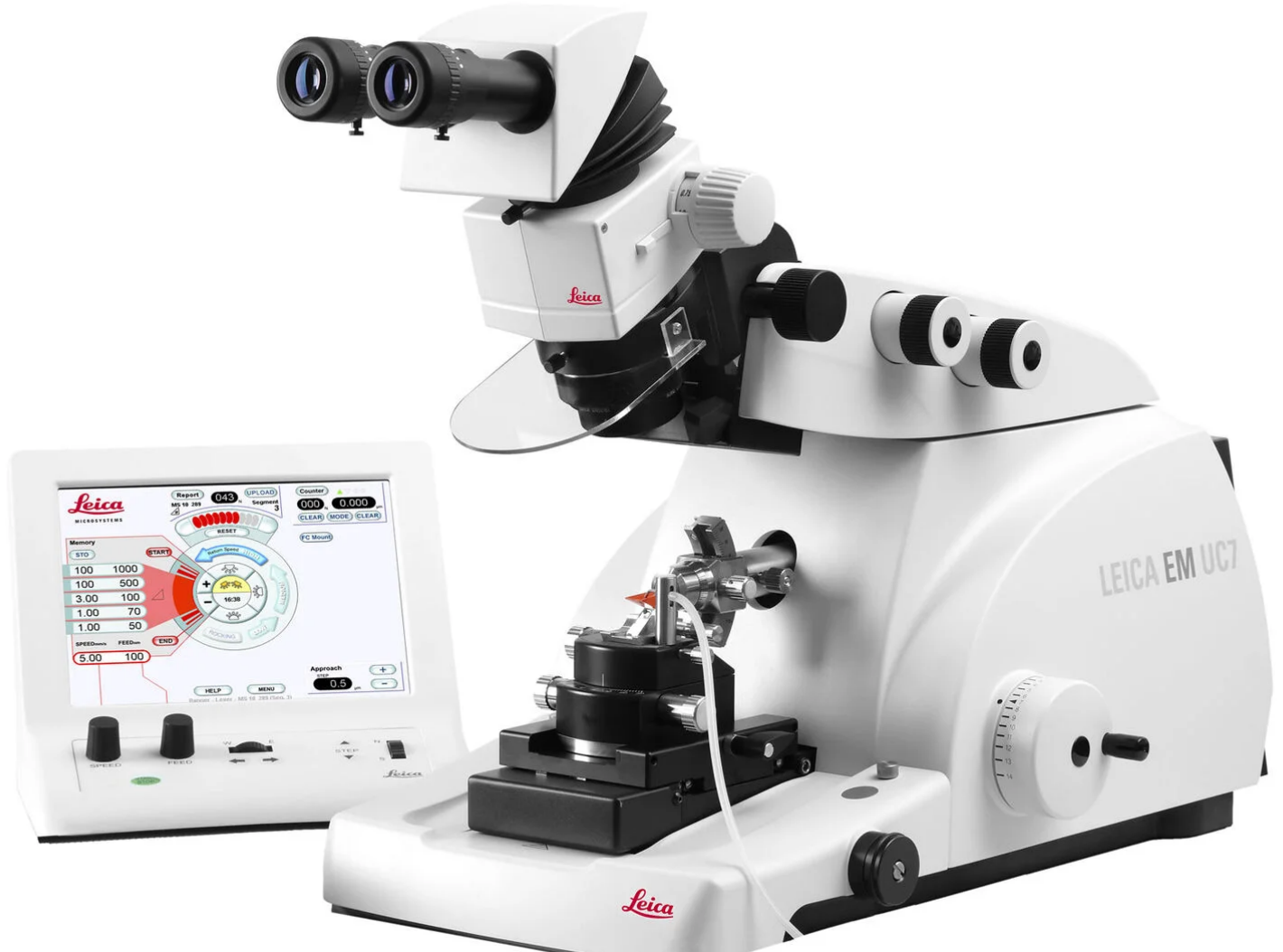


MEETING THE CHALLENGES OF EM SAMPLE PREPARATION

THE LEICA NANOTECHNOLOGY
PRODUCT PORTFOLIO

The highly comprehensive product portfolio for
preparation of biological, medical, and industrial samples.





SAMPLE PREPARATION WITH LEICA MICROSYSTEMS – THE PORTFOLIO THAT GIVES YOU SUCCESS FOR YOUR APPLICATION

TRIMMING & MECHANICAL PREPARATION	EM TXP, EM RAPID, EM TRIM2
ION BEAM MILLING	EM TIC 3X, EM RES102
ULTRAMICROTOMY & CRYO-ULTRAMICROTOMY	EM UC7, ARTOS 3D, EM FC7, EM KMR3
SAMPLE TRANSFER	EM VCT500, EM VCM
CRYO CLEM	THUNDER Imager EM Cryo CLEM
CRYO PREPARATION	EM ICE, EM GP2, EM AFS2, EM CTD
COATING & FREEZE FRACTURING	EM ACE200, EM ACE600, EM ACE900
TISSUE PROCESSING	EM TP
CONTRASTING	EM AC20
CRITICAL POINT DRYING	EM CPD300

CONCENTRATING ON WORKFLOW SOLUTIONS, WE PROVIDE
A PRODUCT RANGE THAT IS ALIGNED TO YOUR NEEDS IN
TEM, SEM, LM, AND AFM INVESTIGATIONS.

THE COMPLETE PORTFOLIO FOR EM SAMPLE

TRIMMING & MECHANICAL PREPARATION



EM TXP

Target preparation device for milling, sawing, drilling, grinding and polishing samples prior to examination by SEM, TEM and LM techniques. A perfect system to pre-prepare the sample prior to the ion beam milling techniques.

- > Accurate location and preparation of microtargets
- > In-situ stereomicroscope observation
- > Automatic process control to produce a mirror-like surface quality



EM RAPID

Advanced specimen trimming device for TEM, SEM, LM.

- > 0.5, 1, 10, 100 μm step advance
- > Adjustable cutting speed 300–20,000 rpm
- > Advance indication on LCD display



EM TRIM2

Specimen trimming device for TEM, SEM, LM.

- > 1 μm step advance
- > Perpendicular viewing of the sample
- > LED illumination
- > Cutting speed 20,000 rpm

ION BEAM MILLING



EM TIC 3X

The Triple Ion Beam Milling System allows production of cross sections and planed surfaces for SEM microstructure analysis (EDS, WDS, Auger, EBSD) and AFM investigations.

- > Broad and deep cross sections as well as uniform large area milling
- > Interchangeable stages – Standard stage, Multiple sample stage, Cooling stage, Rotary stage
- > EM VCT500 option for environmentally sensitive and / or cryogenic sample transfer



The EM TIC3X outfitted with an EM VCT500 docking station is the ideal solution for environmentally sensitive sample and / or cryogenic sample transfer.



EM RES102

Unique ion beam milling device with two modified saddlefield ion sources of variable ion energy for optimum results. It combines the preparation of TEM, SEM, and LM samples in a single benchtop unit.

- > External control of the milling process via LAN
- > Preparation of samples up to 25 mm diameter
- > Fully computer-controlled milling parameters

ULTRA MICROTOMY & CRYO-ULTRA MICROTOMY



EM UC7

Ultramicrotome for ultrathin sectioning of biological and industrial samples.

- > Knife usage monitoring
- > Feed range from 1 nm up to 15 μ m
- > Fully motorized knife stage and AutoTrim function
- > Vibration decoupled gravity stroke



EM FC7

Low temperature ultrathin cryosectioning of biological and industrial samples. Can be mounted on the EM UC7 and the ARTOS 3D.

- > Temperature range from +110 °C to -185 °C
- > Individual temperature settings of specimen, knife, and gas
- > Easy section collection using micromanipulator and EM CRION ionizer
- > EM VCT500 option for environmentally protected sample transfer



The EM FC7 outfitted with an EM VCT500 transfer port is the ideal solution for environmentally sensitive sample and / or cryogenic sample transfer.



ARTOS 3D

Array Tomography Solution for automatic creation and collection of hundreds of serial-section ribbons ready for array tomography with a SEM.

- > Fast setup with programs pre-defined by the user for different section carriers
- > Wrinkle-free sorting and positioning of ribbons on the section carrier ready for SEM imaging
- > Uses the same small section carrier through the entire workflow from sectioning to imaging
- > Also and Ideal solution for CLEM as transparent section carriers are available



EM KMR3

Balanced-break glass knife maker for producing 45° glass knives from 6.4 mm, 8 mm, and 10 mm glass.

- > Highly reproducible, outstanding knife quality
- > Automatic reset of the breaking and scoring mechanism
- > Ergonomic design for comfortable use

SAMPLE TRANSFER



EM VCT500

Versatile vacuum cryo transfer system for contamination-free transfer of specimens between different preparation and analysis instruments.

- > Workflow specimen monitoring
- > Links workflow from preparation to analysis
- > Connects to more than one SEM
- > Various specimen holders for SEM, FIB-SEM, freeze-fracture and more

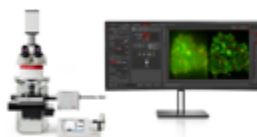


EM VCM

LN₂ cooled workstation for contamination-free specimen manipulation.

- > All sample transfers from loading under vacuum
- > Improved connectivity given by a movable loading sphere, adaptors to the Cryo CLEM and Cryo-TEM transfer holders

CRYO CLEM



THUNDER Imager EM Cryo CLEM

The system ensures contamination-free sample transfer and loading from cryo sample preparation instruments to Leica fix stage light microscope. Maintains sample vitrified during cryo imaging.

- > Rapid screening of large areas and fast determination of regions of interest in the electron microscope under controlled cryo conditions
- > The cryo objective with low working distance (0.28 mm) and with NA 0.9 for high resolution (364 nm) ensures fast and specific localization of target structures in EM

CRYO PREPARATION



EM ICE

High pressure system for freezing aqueous samples delivers optimal sample preservation. Offers the highest flexibility to meet multiple application demands.

- > Programmable sequential freezing of nine (3 × 3) samples
- > Automated LN₂ re-filling of the sample storage dewar
- > Recovery time between freezing cycles is one minute
- > Retrofitable light stimulation and/or electrical stimulation mode



EM ICE Light Stimulation (LS)

All the features of EM ICE standard, in addition offers fully integrated light stimulation.

- > Software integrated programming for LS
- > Automatic recondition of the specific light module
- > Modules with different LEDs (wave lengths): UV, blue, red, green, amber
- > Detailed log file of each experiment
- > Light stimulation precision of 1 millisecond



EM ICE Electrical Stimulation (ES)

All the features of EM ICE standard, in addition offers fully integrated electrical stimulation.

- > Millisecond precision
- > Complete coordination of electrical discharge at the moment of freezing
- > Capturing and imaging action potential and membrane trafficking events



EM GP2

Automatic plunge freezer for EM grids.

- > Automatic single sided and multiple sided
- > Single sided sensor blotting
- > Fast, easy, and safe filling of the secondary cryogen with the unique liquifying head
- > Controllable secondary cryogen temperature
- > Environmental chamber with adjustable temperature and humidity
- > Intuitive control via touch panel



EM AFS2

Freeze substitution and low temperature embedding for light and electron microscopy.

- > -140 °C to +70 °C working range
- > Transfer function – LN₂ gas regulation in the chamber to minimize contamination
- > LED UV polymerization
- > Stereomicroscope viewing
- > AFS smart-remote observation of the process and delivery of critical information via SMS



EM FSP

Automatic reagent handling / dispensing system for freeze substitution and PLT.

- > One step preparation
- > Safer, convenient handling
- > Flexible built-in UV light for polymerization
- > Up to 20 samples per run



EM CTD

Cryo tool dryer

- > Combines heated air flow and heating plate for reliable de-icing
- > Maximum temperature +50 °C

COATING & FREEZE FRACTURING



EM ACE200

Desk-top coater for homogeneous coatings of conductive metal or carbon for EM. Fully automated instrument, options include:

- > Carbon thread evaporation
- > Sputtering
- > Both methods with interchangeable heads
- > Quartz crystal measurement
- > Planetary rotation
- > Glow discharge



EM ACE600

Fully automated, versatile high vacuum coater producing very thin, fine-grained, conductive metal and carbon coatings. Up to two angled coating sources configurable. For high resolution analysis, required for FE-SEM and TEM applications.

- > Sputtering
- > Carbon thread evaporation
- > Carbon rod evaporation
- > E-beam evaporation
- > Glow discharge
- > 104 mm automated rotating stage with planetary option
- > EM VCT500 option for cryo-coating, freeze-fracture, double-replica, and controlled environmental transfer with the VCT shuttle



The EM ACE600 outfitted with an EM VCT500 is the ideal solution for contamination-free cryo-SEM sample preparation with complete environmental control.



EM ACE900

High-end system for freeze fracture applications. High vacuum, a 3-axis movable microtome, and low angle e-beam coating with rotation ensure the best results for TEM replicas and together with the EM VCT500, contamination-free cryo-SEM block face imaging.

- > Large closed cryo-shield
- > Rotating cryo stage
- > High resolution low angle e-beam coating of carbon/ metal
- > Gate valves for e-beam sources and load lock (sample and knife exchange)
- > EM VCT500 option

TISSUE PROCESSING



EM TP

Automated tissue processor for LM and EM sample preparation.

- > Programming of all processing steps
- > Integrated touch-screen-based software
- > Consistent, reproducible performance
- > Processing of multiple tissues in one run
- > Maintaining of environmental conditions during preparation

CONTRASTING



EM AC20

Automatic contrasting of ultrathin sections for electron microscopy.

- > 60 runs per one set of Ultrastains
- > Low reagent consumption
- > High contrast

CRITICAL POINT DRYING



EM CPD300

Critical point dryer for biological (pollen, tissue, plants and insects) and industrial (Micro Electro Mechanical Systems (MEMS), hydro or aerogels) samples.

- > Reduced process times by Leica filler / sample holder concept
- > Minimized CO₂ consumption and minimal user interaction time
- > Integrated waste separator avoids direct contact with chemical waste



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