

## New Octane Elect EDS System Advanced Analysis with Superior Results

- Best light element sensitivity with silicon nitride (Si<sub>3</sub>N<sub>4</sub>) window
- Vacuum encapsulated module
- Highest throughput SDD available, with unparalleled resolution stability
- Integrated manual slide
- Safe for plasma cleaning
- Octane Elect Plus and Octane Elect Super models now available



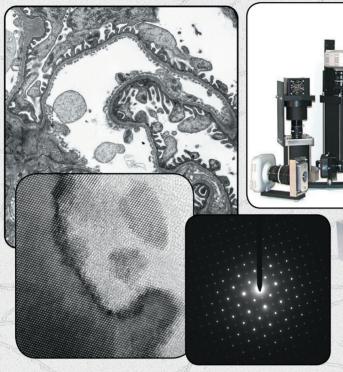




1 TO 50 MEGAPIXELS live and slow scan

MAGNIFICATION FACTOR OF 1 on bottom mounted cameras

DIFFRACTION BEAM STOP on side mounted cameras





Affordable TEM camera systems for research, education, healthcare, and industry since 2001

www.dentonvacuum.com

Scientific Instruments and Applications 2773 Heath Lane • Duluth, GA 30096 (770) 232 7785 • www.sia-cam.com

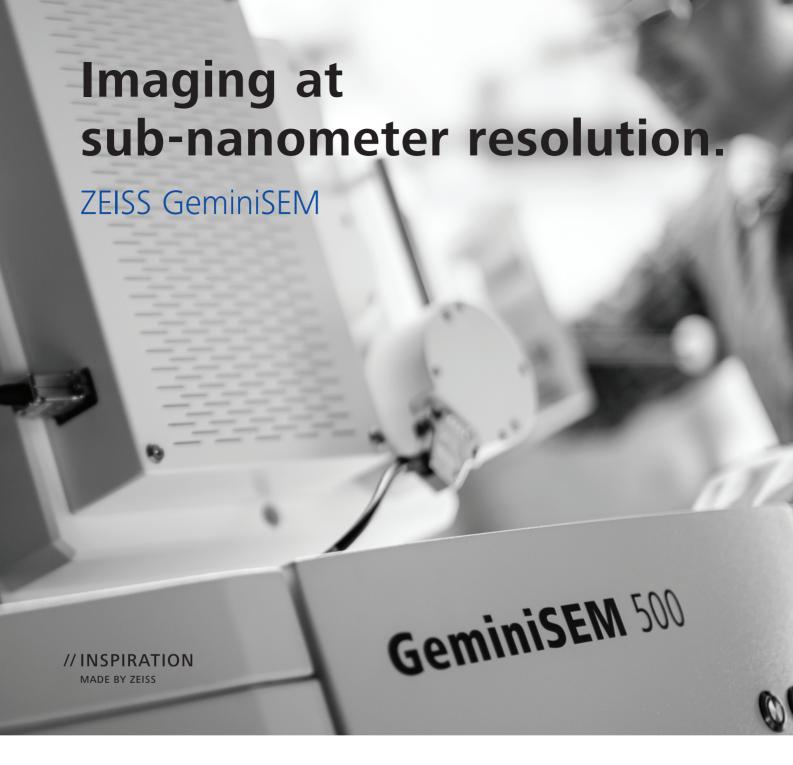
#### **SEM & TEM Sample Preparation BENCH TOP TURBO DESK V TSC** Sample Coater **Evaporation Tool for Tissue** and Life Science Microscopy • Fully automated • Minimize sample charge Carbon coating • Reduce e-beam damage Sputtering • Increase secondary electron AC glow discharge • Low-voltage thermal evaporation DV-502 Support Large Sample, High Throughput Sputter & Evaporation Performance • Rotary shadowing for metals and carbon Value • High vacuum gate valve for rapid cycling • Recipe development

All Denton Vacuum Microscopy tools are backed by a 12 month warranty, over 50 years of process knowledge, an in-house process engineering group, worldwide support, and Global factory service center.

To learn more about how to better prepare your samples, contact your electron microscope manufacturer or call us at +1-800-666-6004

DENTONVACUUM

**Enabling Innovation** 





Sample courtesy of A. Charai, Aix Marseille University, France.

## Your field emission SEM for subnanometer, surface sensitive images

Image effortlessly with sub-nanometer resolution and high detection efficiency, even in variable pressure mode. You always acquire excellent images from any real world sample.

www.zeiss.com/geminisem



# **Evactron® Series**

**Decontaminators** and Cleaning Systems

reduce hydrocarbon contamination in vacuum chambers, improving electron microscope imaging and analytical performance

Electron microscope image quality is greatly improved by the removal of hydrocarbon (H/C) contamination from microscope chambers and from specimen mounts, specimen holders, and the specimens themselves. The Evactron® Decontaminator was developed to clean microscope chambers of their residual H/C contamination.

## ...EMS has it!

**CONTACT US FOR MORE** INFORMATION...

## **Electron** Microscopy Sciences

P.O. Box 550 • 1560 Industry Rd. Hatfield, Pa 19440 Tel: (215) 412-8400 Fax: (215) 412-8450 email: sqkcck@aol.com or stacie@ems-secure.com

#### **OUR MAIN INTERACTIVE WEBSITE:** www.emsdiasum.com



**TO REQUEST A COPY OF OUR CATALOG:** www.emsdiasum.com/

requests/catalog





#### **Evactron® Model EP Plasma Decontaminators**

The Evactron® EP Decontaminator is the latest model in the E-Series cleaning systems. It was designed for cleaning high vacuum chambers, SEM/FIB, and precleaning of samples.

The Evactron® EP model with instant ignition from any vacuum level brings the user highest cleaning rates at low pressures. It uses flowing afterglow to remove surface hydrocarbons from vacuum chambers operating with turbo molecular pumps.

- High cleaning efficiency
- Small footprint/compact plasma radical source (PRS)
- Operates at TMP and turbomolecular pressures
- "Pop" ignition (patent pending)
- Windows and Android GUI software
- Desktop controller
- Fits chambers and load locks
- Vacuum safety interlock



#### **Evactron® Zephyr<sup>TM</sup> Plasma Decontaminators**

The Evactron® Zephyr Decontaminator line was created to accommodate SEMs, FIBs, and other vacuum chambers that use turbo molecular pumps. They are designed for SEM/FIB systems and offer fast and efficient hydrocarbon removal with no damage to samples or sensitive components. They offer users:

- Cleaning of SEM/FIB chambers at turbo pressure
- . Shorter cleaning time (increased production, less downtime)
- One button operation

### **Evactron® CombiClean™ System**



Decontaminate specimens and columns of SEMs and FIBs. The Evactron® CombiClean™ System combines onboard vacuum cleaning chamber and external PRS (Plasma Radical Source) control in one unified system.

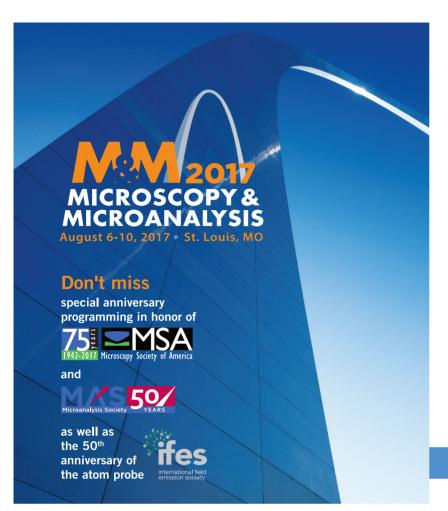
- Cleans SEM/TEM samples and SEM chambers from one desktop controller
- Stores samples and parts after cleaning
- Uses patented Safar TEM side loaders

### **Evactron® SoftClean™ System**



- Windows and Android GUI software
- Optional Safar side loaders (US 8,716,676 B2)
- Accommodates up to 3 TEM stage

Extends the ability to pre-clean specimens, mounts, and holders with the proven downstream plasma ashing process before examination in the chamber, thus insuring high image quality. Can also be used as a specimen storage system.



**Listen** to extraordinary plenary talks from Eric Betzig, Janelia Farm, and Keith Riles, University of Michigan

**Attend** one of FOUR stellar Pre-Meeting Congresses

**Deep dive** into specific topics in traditional day-long Sunday Short Courses

**Experience** hands-on demos for the latest microscopy products during Vendor Tutorials

**Discuss** recent work in depth with over 500 poster presenters

**Visit** the largest microscopy exhibit hall in the world with over 120 companies

**Hear** about cutting-edge scientific work in over 30 symposia in Physical, Biological, and Analytical Sciences

**Network** with colleagues and friends during happy hours and social events

http://www.microscopy.org/MandM/2017

### Nano-Positioning for Microscopy & Imaging\*



PInano 2<sup>nd</sup> Gen XYZ Stage NEW Advanced Controller



XY Piezo Motor Package 100mm



High-speed Nanofocus Package

\*Value Packages: Controller, Software, Mechanics

PI designs and manufactures precision motion systems at locations in the USA, Europe, and Asia. With over 40 years of experience developing standard and custom products based on piezoceramic and electromagnetic drives and over 1,000 employees in 13 countries, PI can quickly provide a solution for your positioning and automation projects in industry and research.

PI

Physik Instrumente **www.pi-usa.us** 508-832-3456 (East) / 949-679-9191 (West)

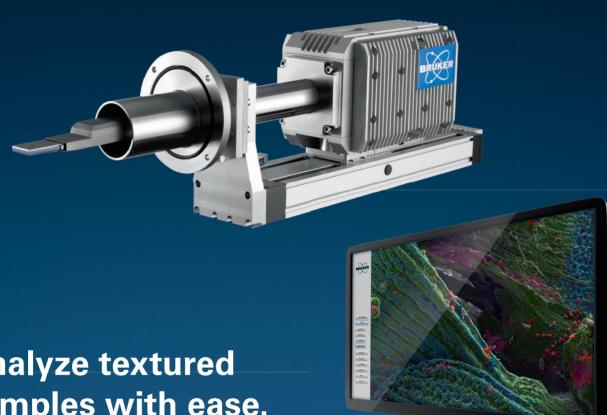
PRECISION | SPEED | STABILITY - MOTION CONTROL & POSITIONING SOLUTIONS



Index to Advertisers	
Bruker Nano GmbH	A17
Denton Vacuum	A12b
Diatome	Cover 3
EDAX, Inc.	A11
Electron Microscopy Sciences, EMS	Cover 2, A14
FEI Company	A6
Hitachi	Cover 4
Norsam Technologies, Inc.	A16a
Physik Instrumente	A15b
Protochips	A9
Scientific Instruments & Applications (SIA)	A12a
Tescan	A10
ZEISS	A13



## Someone has to be first. XFlash® FlatQUAD, multiple detector systems & VZ



**Analyze textured** samples with ease.

- The unique XFlash® FlatQUAD offers a large solid angle and an amazing take-off angle. This minimizes shadowing so you can see every nook and cranny of your sample in record time.
- Bruker's multiple detector systems provide large solid angles and great take-off angles too. You can start with one detector building up to four, depending on your needs.
- The Variable Z (VZ) adapter allows you to optimize take-off angles in-situ, which significantly improves the analysis of topographically challenging samples.

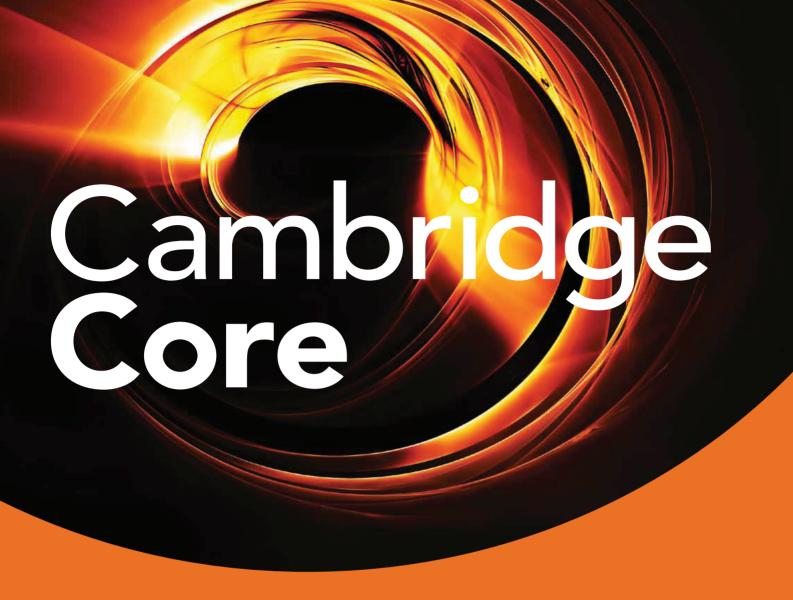
Someone has to be first.



www.bruker.com/quantax-flatquad

Innovation with Integrity

**FDS** 



The new home of academic content cambridge.org/core

Cambridge Core





## **DIATOME** diamond knives

ultra 45° • cryo • histo ultra 35° • histo jumbo cryo immuno • ultra sonic ultra AFM & cryo AFM trimtool 20 • trimtool 45 trimtool 90

Over 40 years of development, manufacturing, and customer service

### DIATOME U.S.

P.O. Box 550 • 1560 Industry Rd. • Hatfield, Pa 19440 Tel: (215) 412-8390 • Fax: (215) 412-8450 email: sqkcck@aol.com • www.emsdiasum.com

#### Free customer service

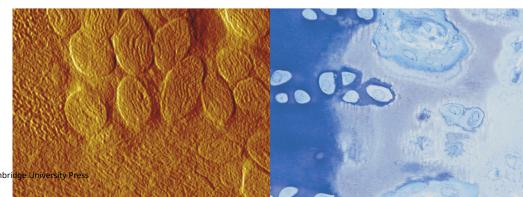
Sectioning tests with biological and material research specimens of all kinds. We send you the sections along with the surfaced sample, a report on the results obtained and a recommendation of a suitable knife. Complete discretion when working with proprietary samples.

#### Re-sharpening and reworking service

A re-sharpened Diatome diamond knife demonstrates the same high quality as a new knife. Even knives purchased in previous years can continue to be re-sharpened. The knives can be reworked into another type of knife for no extra charge, e.g. ultra to cryo or 45° to 35°.

#### Exchange service

Whenever you exchange a knife we offer you a new DiATOME knife at an advantageous price.

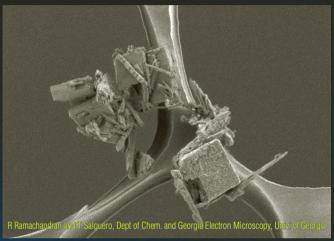




## LV-STEM/SEM analytical

The world's only combination of a  $\leq$  0.4 nm resolution<sup>1</sup> SEM with full STEM capabilities including EDX and EELS, close to 0.2 nm in STEM<sup>2</sup> with cold FEG & true immersion lens

1: Guaranteed; 2: M.Konno, et.al., Ultramicroscopy 145 (2013)

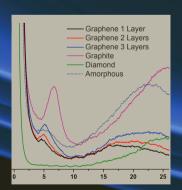


Deceleration technology at 300 V and DOF correction

## High-Resolution, Low-Voltage, Analytical STEM/SEM

- Imaging from 100 V to 30,000 V
- 0.7 sr for EDX
- Elemental maps at ≥ 11,000 pixels/s with Hitachi's own EELS

This new breed of microscopes delivers for research aiming at nanotechnology, materials science, and life sciences.



EELS spectra of all C allotropes Note Plasmon shift with increasing number in Graphene layers



## **Think Outside the Lab**