

RESOURCES

A summary of new products and services
for materials research...

Wafer Substrate Bonding Unit:

Logitech's modular wafer substrate bonding unit reduces by half the preparation cycles for temporary wax mounting of GaAs wafers. The unit offers a 4- or 6-in wafer capacity, automatic and repeatable processes, and consistently thin wax layers. Both vacuum and pressure bonding are used to produce consistency to support disc parallelism, regardless of the size or number of wafers in varying thicknesses. Users can program temperature and vacuum settings, and the bonding process can be completed automatically in 45 minutes, depending on the temperature.

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Two-Stage Refrigerator: MMR Technologies offers a two-stage refrigerator that extends cryogen-free materials research to temperatures as low as 35 K. The unit combines a neon Joule-Thomson (J-T) cooler stage with a nitrogen J-T cooler stage, resulting in a vibration-free cryocooler that produces more than 50 mW of cooling capacity at 35 K. J-T refrigerators can be operated with various gases, including nitrogen, argon, methane, and carbon dioxide.

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Wet Processor and Cleaner for GMR Slider Fabrication:

Model 300ML from Solid State Equipment Corporation is a cleaning and solvent processing machine for GMR slider and slider bar wet processing. Features include scrub brushing systems driven by servo motors with torque monitoring capability; fluid through the brush chemical dispensing; capability for up to four scrub brushes; high-pressure scrubbing with on-the-fly pressure control for fluids up to 3000 psi; and scrubbing nozzles, nozzle dispensing control with 100% surface coverage, and nozzle height control in 0.001-in. increments. A built-in solvent recirculator facilitates no-water GMR processing.

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Modular Coating System for Large or Small Surfaces:

Sono-Tek's MCS•Infinity™ systems are custom engineered for each application and deliver a soft, uniform, and controllable ultrasonic spray, with minimal overspray. Spray width range is 6–300 mm per module, and flow rate range is 1–200 ml/min per module. Median drop size range is 18–68 μm, and deposition uniformity is +15%. The self contained module consists of a liquid delivery system, power supplies, nozzle power generator, valves, electrical inputs and outputs, and controls and displays for liquid, compressed air, and nozzle power.

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FTIR Spectrophotometers: Shimadzu Scientific Instruments' FTIR-8300 and FTIR-8700 spectrophotometers offer a computer-controlled optical alignment system with intrascan correction of 5–10,000 Hz. Hyper-IR software for the Series 8000 FTIR spectrophotometers facilitates data analysis and manipulation, and includes multilinear regression and PLS quantitation, conversion, and spectral search functions.

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Organics and Organometallics Catalog:

Free 1,000-page catalog from Alfa Aesar features more than 10,000 products, of which 3,000 are new. The updated catalog provides physical property data, cross references, synonym listings, a molecular formula index, and CAS registry number index. The company also offers a catalog of research chemicals, metals, and materials, featuring a range of inorganics, pure metals, alloys, elements, and AA/ICP standards.

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Surface Profilers: The DEKTAK 3 Series surface profilers from Digital Instruments/Veeco Metrology Group are suitable for measuring step heights, roughness, and planarity in R&D applications. The Dektak 3 model accommodates 5-in. diameter samples and has a 30-mm maximum scan length. The Dektak 3ST and 3ST AUTO 1 models accommodate 6-in. samples, with 50-mm scan lengths and a maximum of 8,000 data points per scan. The AUTO 1 model also offers motorized x-y sample positioning and zoom optics. All models include a color video microscope.

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Nd:YAG Laser System: The Tempest™ from New Wave Research features harmonic wavelengths of 1064, 532, 355, and 266 nm. The flashlamp pumped system offers repetition rates of 10, 20 and 30 Hz. The laser provides energy output as high as 200 mJ/pulse at 1064 nm, enabling operation with single-shot, continuous, and TTL trigger control. Applications include laser-induced breakdown, Raman spectroscopy, and laser ablation.

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Tactile Force Indicating Sensor:

Sensor Products' Pressurex is a sheet of film (maximum gauge of 8 mils) that can be used to assess compression magnitude and distribution between the two mating or impacting surfaces. When placed between two surfaces, the film permanently changes color. The intensity of the color is proportional to the amount of force applied. By comparing the film to a color calibration chart or using an imaging system supplied by the company, users can quantify stress characteristics across the surface.

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Metal Coatings for Particles:

Advanced Ceramics' Metal Coated Particle (MCP) process encapsulates particles with a pure coating of nickel, zinc, copper, iron, tin, cobalt, or a combination of these metals, in any thickness. Coatings 20–40 vol% are attainable with tolerances better than +0.5%. Any particle that can be wetted by water and has a specific gravity greater than 1.0 can be coated. Base particle sizes range from less than 5 microns to more than 5,000 μm, depending on particle density and shape.

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Bi-Polar Pulse DC Power Supplies:

The Astral™ 120 from Advanced Energy® Industries is a bipolar dc pulsing power supply for industrial dual- and single-cathode sputtering applications. The units offer up to 120 kW of delivered power and can increase deposition due to the ability of a bipolar dc square wave to deliver more power into the load at the requested power level. Independent control of each cathode allows users to balance the power between unlike cathodes. An arc-prevention circuit reduces arc-related defects.

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Analytical SEM User Interface:

LEO Electron Microscopy and iXRF Systems have collaborated to develop a single graphical user interface allowing access to all SEM controls and EDS functions, with a unified help system and a unified results reporting facility. Searching over a specimen and analyzing features is now a point-and-click process. For example, spot mode cross-hairs can be dragged to the point of interest, and analysis begins when the user lets go of the mouse. Included are digital mapping, linescanning, qualitative analysis with auto-ID, quantitative analysis, quantitative position indexed spectrometry, and digital pulse processing.

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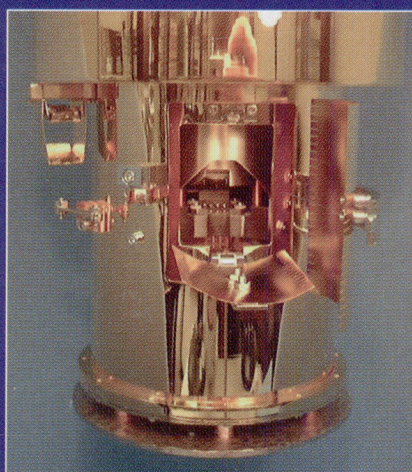
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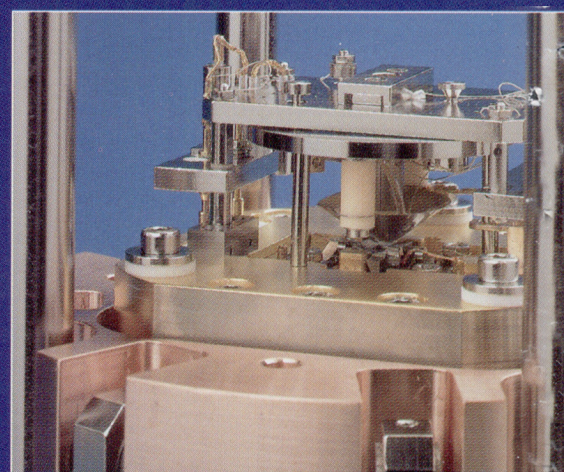
TOPSystem 3 STM Control System

- Windows®95 based software for ease of use and flexibility
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CryoSTM

- Atomic resolution on metals
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Variable Temperature STM

- surface science applications, including metals from 50 – 1000 K
- open access allowing deposition during tunnelling
- low mass tip mount allows 'movie rate' in imaging
- same atoms in view during >200 K temperature range.

To find out how we can match our expertise to yours, or for more information about any of the featured products, contact us today.

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