

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

X-ray Spectrometer for EDS Applications:

The IbeX from NORAN Instruments fits most SEMs and does not require a WDS port. The device offers high resolution and detection of light elements such as Be, B, C, N, O, and F. Up to six diffractors are used, each optimized in material, *d*-spacing, and curvature for a particular element and application. The diffractors also can be scanned through an angular range to detect nearby peaks or to measure background. Reconfiguration is possible by adding or changing diffractors.

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Atomic Force Microscope:

The Accurex II™ from TopoMetrix provides accuracy and repeatability within ±1% in all situations, including rotated and zoomed scans. NearContact™ imaging is performed by modulating the probe over the sample surface at low amplitude, without damaging delicate samples. A variety of probes enables users to optimize their systems for different applications. Scan modes include contact and noncontact AFM, EFM, MFM, SEPM, and SThM. An applications brochure covers semiconductor process development and control, defect review, and failure analysis.

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Vapor Sublimation Trap:

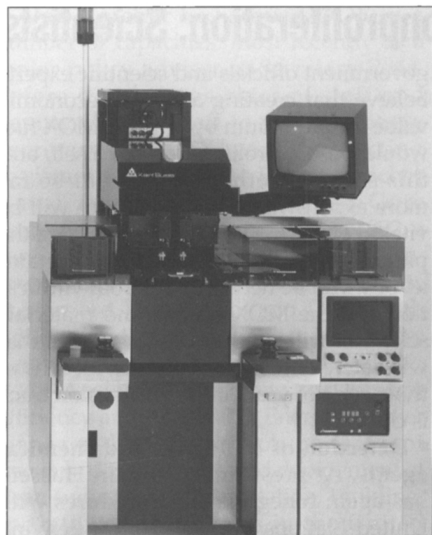
MKS Instruments' water-cooled VacuComp™ catches by-products generated in vacuum processes such as CVD. The two-stage design traps effluent by-products in the first stage and particulates in the second stage, reducing the chance of by-products backstreaming into the reaction chamber and contaminating the system. The trap also collects the by-products before they contaminate the vacuum pump, lengthening pump life.

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Scanning Probe Microscope:

The BioProbe™ from Park Scientific combines scanning probe and optical microscopy techniques in one system designed for the life sciences. Users view samples with optical contrast methods while simultaneously acquiring high-resolution SPM images. The instrument features SPM modes for operation in air or liquid, including contact, intermittent-contact, and noncontact AFM, LFM, FMM, PDM, and MFM. FlexScan™ technology allows the scanner to rest under inverted microscope condensers and long-distance upright microscope objectives, permitting simultaneous optical and SPM imaging.

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Enhanced Mask Aligner: The MA150CC from Karl Suss can handle 150 mm wafers and 6-in. × 6-in. (15.24 × 15.24 cm) square substrates at a throughput of 120 wafers per hour. The unit is suitable for exposure of thick resist and high topography. The Cognex pattern recognition system allows autoalignment accuracy of 1.0 μm. Options include automatic bottomside alignment, dual focus alignment system for alignment gaps of several 100 μm, and large exposure gap optics. The mask aligner also is available for wafers up to 200 mm.

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Low-Temperature Superconducting Magnetic Energy Storage Devices:

The PQDC™ from American Superconductor is designed to eliminate the impacts of momentary voltage sags and power outages that last less than a second. By comparison, battery systems address only longer power disruptions. The device boosts voltages in drive systems such as those used in pumps and others incorporating dc drives. It also can extend the life of battery back-up systems that provide dc power for uninterruptible power supplies.

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Fiber Optic Products: Free fiber optic literature catalog from Chiu Technical provides details on R-90 and R-90M Munchkin ring lights. Quartz halogen light sources are included and feature single/double fiber optic illuminators, high-intensity halogen light sources. Also described are high-performance short arc xenon and mercury power supplies, darkfield/brightfield examination base, and fiber optic light guides.

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Ultrasonic Spray Nozzle Systems:

Sono-Tek's ultrasonic atomizing nozzles offer a soft spray and are suitable for applications requiring flow rates from μl/m to 6 ml/s. Spray velocities range from 0.7–1.2 ft (21–37 cm)/s, compared to 35–70 ft (11–21 m)/s for pressure nozzles. Sono-Tek's broadband ultrasonic generator, which operates over a frequency range of 20–120 kHz, uses phase-locked-loop control technology to automatically lock onto a nozzle's specific operating frequency. Web-coating and ultrasonic spray fluxing systems are available.

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High-Pressure Gas Analyzer:

The Micropole™ RGA from Ferran Scientific can operate at pressures up to 10 mtorr, enabling users to accomplish *in situ* operation in high-pressure process environments. The unit is composed of 16 identical cylindrical rods arranged in parallel to form an array of nine quadrupoles. The SC3 Spectra Converter provides the RF to the rods, receives and amplifies the signals, and sends them to the computer interface for processing. Screen and data displays include analog scan, logarithmic bar display, and trend mode.

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Contact Angle/Surface Energy Analyzer:

The FT 125 from First Ten Angstroms uses a pre-aligned fixed optical system and preset lighting to analyze drop shapes and provide contact angle data without operator intervention. Specimens up to 250 mm wide and 25 mm thick can be placed on a stage and raised to an appropriate level. A fluid drop is dispensed from a syringe using a mechanical ratchet, which provides predetermined drop volumes of 3–10 μl. Software automatically analyzes the drop shape and computes the contact angle. Contact angles can be measured from 5 to 120°.

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Ceramic Shield Option:

AG Associates' Ceramic Shield for Heatpulse® rapid thermal processing systems enables users to achieve process performance independent of wafer backside emissivity and repeatability for 0.25- and 0.35-micron RTP applications. The shield protects the wafer backside from lamp radiation and provides a constant emissivity backside surface and an isothermal radiation cavity between the wafer and shield. This enhances temperature uniformity, within 1.0°C, 1 sigma, and repeatable wafer processing, within 2.0°C, 1 sigma, independent of wafer backside structures.

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