

RESOURCES

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

Fluorescence Stereomicroscope:

Leica's MZ-FLIII offers a third beam path for fluorescence images to ensure that light is guided correctly at all zoom positions and that the background of the field of view is uniformly dark. Filters can be changed instantaneously because of the arrangement of the excitation and barrier filters on the same filter carrier and the creation of a horizontally rotatable rapid filter changer for four filter combinations. Zoom range is 8x–100x with maximum magnification of 640x and high resolution up to 600 line pairs/mm with the 1.6x planapochromatic objective.

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Single-Unit RF Power Delivery System:

The Apex™ from Advanced Energy Industries integrates a 13.56 MHz RF power amplifier, impedance match, and VI probe. The system eliminates the 10–25% power loss found in typical component configurations. Users can measure and regulate plasma impedance changes through closed loop control signals back to the generator. Reliability exceeds MTBF of 200,000 h, a 300% improvement over typical configurations. The product platform is available in power ranges of 1–10 kW and frequencies of 13.56–27.12 MHz.

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Effusion Cell: EPI MBE Products' SUMO™ cell design provides low background impurities, reduced defect counts, flux uniformity, low thermal load, negligible shutter flux transients, and a minimal long-term depletion effect. The cell is available in two configurations: cold-lipped for use with aluminum, and hot-lipped for use with gallium, indium, and II–VI applications. An EPI 2000-g SUMO™ effusion cell installed onto standard V100 multiwafer production systems provide more than double the useful capacity of materials as compared to a standard open face Group III effusion cell.

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Scanning System for TEM Images:

The TEMSCAN from Electron Microscopy Sciences is a high-resolution, backlit digital scanning system for capturing digital TEM images from film. The system combines a high-frequency light box with the optical resolving power of the MicroLumina digital camera to transfer analog film to digital media. The system can transfer film 1 × 1.5 in. to 9 × 12 in. in 36-bit color/2-bit grayscale at 3380 × 2700 pixel resolution. The TEMSCAN connects to either a PC or Macintosh and can convert old negatives to digital files.

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Wet-Process Semiconductor Parts:

Engineering Plastics' EPI Wet Teflon® Process Semiconductor Parts are machined from a single piece of PTFE and PTFM with tolerances of 0.003 in. (~0.76 m). The parts provide less than 0.01% water absorption over 24 h and are unaffected by photoresists, acids, and corrosives. They can withstand from -450°F to +500°F (~ -265–257°C) operation, and can be rinsed with deionized water. Their low coefficient of friction virtually eliminates particle shedding.

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Dynamic Mechanical Analysis Data-

book: Plastics Design Library offers a 263-page handbook for evaluating temperature- and time-dependent behavior of plastic materials under load. Data for 120 families of thermoplastic materials are featured, including blended polymer alloys. The book shows how to use the data to predict, at various temperatures, service life and the potential for failure due to creep rupture, excessive deformation, and environmental aging.

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High-Speed Sealing System:

Model 2200e Matrix Sealer from Solid State Equipment implements the parallel seam-sealing process for weld sealing of parts in matrix tooling and features high yields and contamination-free lid placement. The process seals the package effectively while the device temperature remains low. A vision system for accurate lid placement examines the entire lid and seal ring. Automatic package and height detection eliminate arcing, and feedback-controlled electrode force ensures uniform sealing.

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Silicon and Metalorganic Chemistry:

Gelest's 544-page catalog of silicon and metalorganic chemistry features scholarly reviews, physical properties, hazardous material ratings, and applications information for more than 2,000 compounds. Applications for silicon compounds include self-assembled monolayers for microcontact printing and applications for metal-containing compounds include optical coatings, CVD, and advanced composites.

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Q-Switched Diode-Pumped Lasers:

Compass™ QM lasers from Coherent feature a compact footprint and an air-cooled power supply. The output of the diode bars, located in the power supply, is fiber-delivered to the head to facilitate field replacement. Pulse energies are up to 750 μJ, and pulse lengths are less than 10 ns. Repetition rates are up to 150 kHz, and pulse-to-pulse stabilities exceed 1% rms. Three available wavelengths are 1064, 532, and 355 nm.

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Filter Wavelength Division Multi-

plexer: E-TEK Dynamics's FWDM enables active fiber monitoring without disrupting traffic on a network system operating in the 1550-nm signal band. A supervisory channel can be added at 1510 nm or 1625 nm in a monitoring system to check the integrity of a fiber network while it is in operation, allowing a fiber fault to be detected in real time. Polarization sensitivity is less than 0.1 dB over wavelength and temperature.

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300-mm Semiautomatic Probe

Station: The SUSS PA300/HR from Karl Suss is designed for probing 300-mm wafers. Based on the SUSS PM12 manual probe station on 300-mm substrates, the semiautomatic PA300/HR meets probing applications from analytical to pilot production, incorporating a square chuck for applications such as flat-panel display or a round chuck for capacity-voltage testing.

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Laser-Imaging Patterned Wafer In-

spection System: KLA-Tencor's ILM-2230 combines oblique angle darkfield illumination with small-pixel high data rate image processing. This combination of technologies provides good capture rate of a range of yield-critical defect types on 0.25-μm and smaller devices at high throughput and with a low nuisance defect rate. The system is optimized for advanced interconnect process-inspection application such as chemical mechanical planarization.

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