

RESOURCES

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

High-Performance Gaussmeters and Hall Probes:

Lake Shore's Series 400 gaussmeters and Hall probes may be used in varying configurations for magnetic field test and measurement applications from -269 to 75°C. Handheld and benchtop gaussmeters can measure magnetic fields from 0.02 G to 300 kG. Custom liquid displays, 20-character by two-line vacuum fluorescent message-based displays, or analog displays are available. Resolutions range from 3-1/2 digits in the handheld unit to 4-3/4 digits in larger models, and full-function keypads offer function access with one or two keystrokes. Other features include the display and capture of maximum ac and dc amplitude, programmable corrected analog output, autoranging, interchangeable probes, and IEEE-488 and RS-232 interfaces.

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In-Line Semiconductor Manufacturing Process Control:

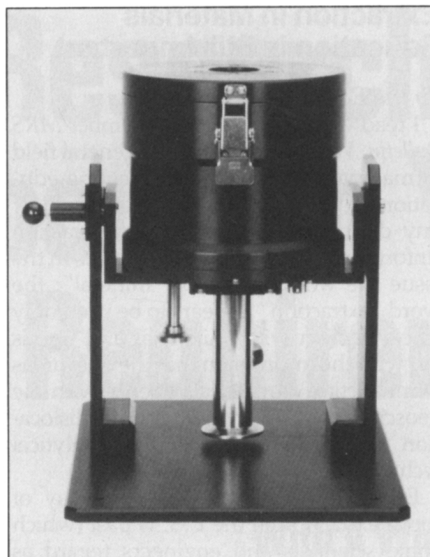
KLA Instruments' Yield Management System provides in-line process monitoring that accelerates defect detection and elimination programs in advanced integrated circuit manufacturing facilities. The system couples 0.20 μm detection of process defects and particles with inspection speeds of 3 to 6 minutes for full, patterned wafers. Defect images and defect data are integrated into a relational database. The three-part system features a KLA 2111 inspection tool, a KLA 2550 data and image analysis workstation, and a KLA 2608 off-line review station that supplements defect information gathered from the KLA 2111 and can also be used to review and classify defect information from the workstation.

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Windows Software for Vacuum Systems:

Microscience's MicroLIMS software provides drivers and graphical user interfaces for standard vacuum components and systems. MicroLIMS operates in Microsoft® Windows 3.1 and features ready-to-use computer interfaces for most equipment. Each module provides a graphical representation of the instrument or system and a hardware driver that allows users to operate the instrument via computer. Modules also can be linked together. MicroLIMS uses other Windows programs and the Windows Dynamic Data Exchange, and Excel is used for the macro programming environment and as a database for storing and manipulating data. The software is available for standard vacuum components and complete systems.

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Cryogenic Test Dewar: Lake Shore's compact MTD 130-68 provides high-throughput testing of 68-pin LCC devices at liquid nitrogen temperature or colder. With the included transfer line, cool-down of test devices to <80 K takes about 10 minutes; cool-down to 20 K with the LHe, 20 minutes. Used with Lake Shore's Model 330 autotuning temperature controller, with a 50 W output power stage, the system can be warmed to room temperature in 20 minutes. Mounted to a gimballed base, the MTD 130-68 rotates for operation in a down-looking or horizontal orientation. The modular design reduces time required for device changing and cycle testing, and the test dewar can be customized and fitted with breakout modules for special electronics.

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Surface Characterization Services:

Surface Science Laboratories' QuickScan and QuickScan Plus analytical services can screen a sample surface for contamination, confirm expected changes, monitor known components, and verify the absence of contamination. QuickScan characterizes the elements present in the top two to 10 atomic layers of a sample; QuickScan Plus focuses on selected elements and investigates their chemistry. Analyses screen for contaminants such as organics, especially silicones; ionic contamination of Na, Zn, Cl, sulfate, and phosphate; and heavy metal contamination of Pb and Sn. Applications include examining stainless steel for impurities, testing the cleaning effectiveness of non-CFC-based solvents, and analyzing polymers.

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Solid-State Pulsed Nd:YAG Laser:

The Surelite II from Continuum generates outputs of 650 mJ in the infrared (1,064 μm) and 300 mJ in the green (532 μm), and affords a uniform beam profile. The pump-chamber design uses one rod and one flashlamp and incorporates a graphite resonator structure and gaussian mirror optics. The compact unit is air-cooled, and the controls, indicators, and computer interface are readily accessible on small power supplies. Third and fourth harmonic generation options are available.

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Magnetic Measurements:

LDJ Electronics' Magnetic Measurement Service enables researchers and R&D engineers to extract information from samples such as magnetic toroids, ferrite permanent magnets, laminated strips, recording tapes, magnetic slurry, nickel foils, rigid disks, rare earth and alnico magnets. Measurements can be provided in graphic outputs such as hysteresis curves, initial magnetization curves, demagnetization curves, coercivity maps, differential curves, and custom testing. Numeric outputs include saturation induction, coercive force, switching field distribution, squareness ratio, core loss, and permeability.

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CF Vacuum Components:

Catalog from HPS covers VacuComp™ Series 88 CF vacuum components made from high-purity stainless steel. The components are suitable for use in ultra-high vacuum to below 10^{-13} torr and temperatures from -196 to 500°C. Fittings and flanges range from 1-1/3 mini to 10 in., with rotatable or nonrotatable flanges and various bore sizes. Part-number cross references, technical data, dimensions, and prices are included.

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Thin-Film Stress Measurement:

Tencor Instruments' FLX-2900 system uses laser scanning to measure thin-film stress up to 900°C on metals, oxides, and polyimides. The FLX-2900 positions the laser scanning system beneath the temperature-controlled measurement chamber, reducing measurement noise created by temperature changes in the chamber during heating and cooling. The measurement chamber can be raised to 900°C in less than one hour. Measurements take about five seconds and can be automatically repeated at user-specified time or at temperature intervals.

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