

RESOURCES

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

Noncontact Measuring System:

Laser-based system from UBM has a 1-mm measurement range and 0.01- μm accuracy. The UBC 14 can measure surface profiles and roughness, flatness, and thickness on bearing surfaces, micromachined parts, contact lenses, thick films, computer components, and more. The system consists of a noncontacting laser sensor unit, movable stages (x,y,z), and a computer-based controller. A video system allows users to locate an exact point and area during measurement, and results may be customized. Eight sensor modules are offered, including the Telefocus sensor with 15-mm stand-off.

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Custom Laser-Cut Parts:

Alabama Laser Technologies offers custom-engineered parts in exotic and convenient materials, including tungsten and titanium, ceramics, Plexiglas, and other materials. Materials as thick as 1/2 in. can be cut with tolerances held to +0.005 in. Precision laser cutting, welding of dissimilar metals and powder metal technology parts, laser marking, three-dimensional cutting, and cladding services are also available.

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Vacuum Safety Valve:

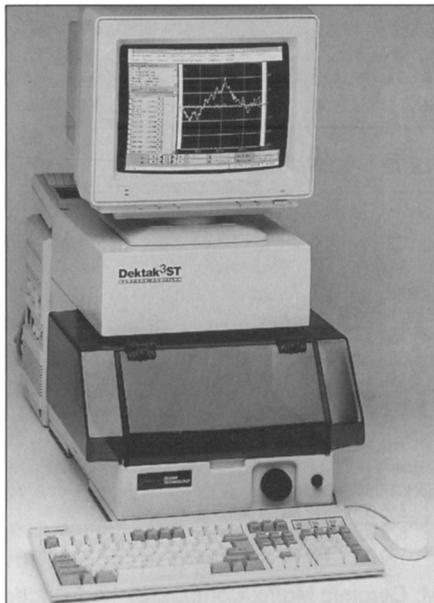
HPS Series 145 Vacuum Sentry[®] protects from power failure by isolating the vacuum system and venting the mechanical pump, thereby preventing oil backup and enabling the motor to restart the pump. The device, which has an average lifetime of 100,000 cycles, operates with atmospheric pressure and activates upon loss of electrical power so that no external pressurized gas source is required. It is offered with ISO-KF flange sizes and solenoid voltages and frequencies common to most pumps.

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Quadrupole Mass Spectrometer:

Ametek's Dycor[™] System 1000 is suitable for residual gas analysis, thin-film deposition, plasma etching, ion implantation, sputtering, cryogenics, molecular beam epitaxy, and more. It features a graphical user interface for operating modes. Other options include a plug-in card that transforms a PC into a System 1000 controller; continuous updating of data through dynamic linkage to Windows[™] applications in real time, enabling data integration into a control scheme; remote computer control via modem or RS-232 port; and macros which automate applications.

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Stress Measurement Systems:

Veeco/Sloan Technology's DEKTAK³ and DEKTAK³ST stylus-based profilers can automatically calculate thin-film stress on semiconductor wafers and can monitor deposition processes and minimize stress. Both models use a stress algorithm to create a curve made up of stress values for each data point on the scan trace. They also use the same linear scan method employed by high-end surface profilers, enabling longer stress measurements free of geometric distortion. The standard DEKTAK³ accommodates up to five-in.-diameter wafers, with maximum scan length of 30 mm. The DEKTAK³ST accommodates up to six-in.-diameter wafers, with scans of up to 500 mm and a maximum of 8,000 data points per scan.

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Ultrafast Intensified CCD Camera:

Photek and ARP offer a camera with a large optical shutter and fast gate generator. Tests using picosecond laser impulses showed shutter opening and closing times of 4 ns with an FWHM of about 10 ns.

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Compact Vacuum Gauge:

Balzers' PKR 250 Full Range[™] gauge integrates Pirani and cold cathode ionization into one gauge head. The gauge requires one connection port in the vacuum system and provides direct linear output across the entire vacuum range, offering total pressure measurement from atmosphere to 10⁻⁹ torr. An interlock design protects against damage from power surges. The unit is available in KF or CF flange.

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ISO 9000 Registration Guidance:

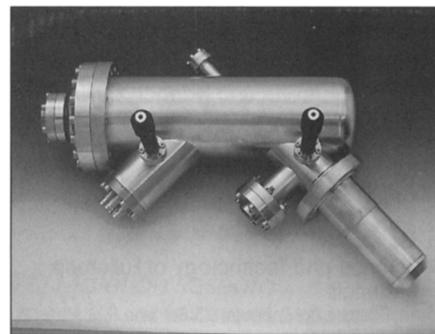
A 230-page guide from the American Society of Mechanical Engineers presents a step-by-step approach to achieving ISO 9000 registration and covers each stage of the process. The book contains ideas and techniques that can be applied by most sizes and types of organizations. Real-world examples and self-assessment checklists show how operations may be brought into compliance. Employee training, document control and recordkeeping, system audits, management's role, and other topics are also discussed.

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Digital Oscilloscope for Classroom

Use: Two-channel HP 54603B from Hewlett-Packard is designed for use in college engineering labs and classrooms. The PC-compatible device with analog-like controls offers a display update rate of 1.5 million points/s, and the vector mode has a refresh rate of 60 screens/s regardless of the number of waveforms displayed. Traces change intensity when the slew rate changes, and the autoscale feature allows students to set voltage, time, and trigger parameters without instructor assistance. Plug-in modules expand capabilities.

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Energy Analyzers:

Omicron's CSA 200 and CSA 300 cylindrical sector design provides the high-resolution typical of hemispherical analyzers while retaining high transmission. A resolution of 9 meV has been achieved for the Ar-3p_{3/2} peak. Bipolar operation of both models enables them to be used as electron energy analyzers for techniques such as XPS, EAS, and UPS, or as ion energy analyzers for ISS. Independently variable, adjustable entrance and exit slits offer flexibility in determining the ultimate area analyzed and absolute energy resolution. Units can be retrofitted to existing UHV systems using a standard six-inch O.D. Conflat-style flanged port.

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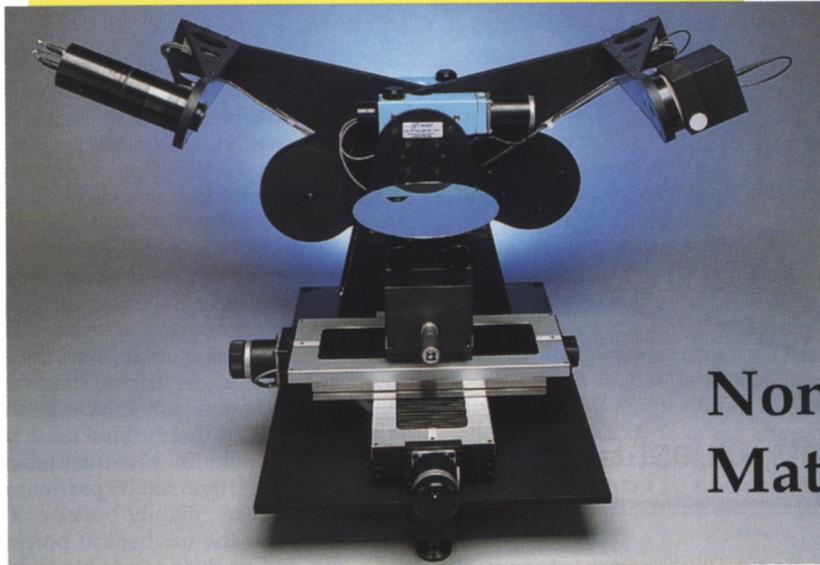
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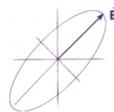


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