

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

Vacuum Gauge Catalog: Free 20-page catalog from Kurt J. Lesker features a variety of vacuum gauges that includes thermocouple, Pirani, convection, cold cathode, and ionization gauges. New products include a convection gauge with six orders of magnitude, a hand-held battery-powered thermocouple gauge, vacuum switches, and a dual sensor wide-range gauge.

Circle No. 60 on Reader Service Card.

Multi-Channel Fiber Optic Infrared Thermometer: Mikron Instrument's M680 offers temperature ranges of 150–4000°C within selected spectral responses in the 0.65–1.60- μm domain. Users can choose up to four measurement channels and can select from a variety of lens assemblies, cable lengths, and temperature ranges. Four channel models can be specified with two different temperature ranges. The fiber optic feature permits measurement of targets that are not in direct line of sight of the detector.

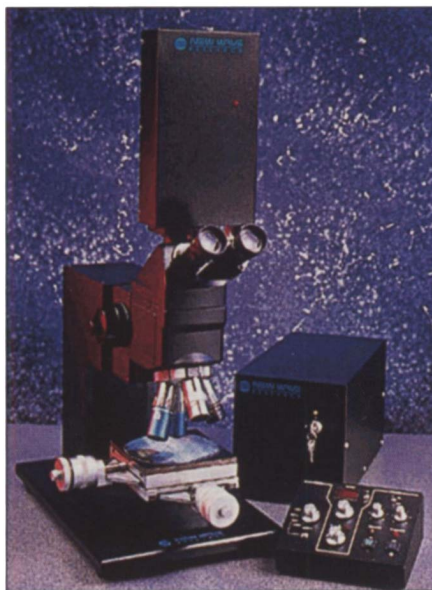
Circle No. 61 on Reader Service Card.

Annular Slicing and Peripheral Cutting Saw: The ADPI from Logitech combines annular slicing and peripheral cutting. In the annular cutting mode, materials such as lithium niobate can be sliced from the crystal boule. Up to 100 cuts can be made on the boule, and an optimal surface roughness of 100 nm can be produced. Use of the peripheral mode can produce 1–2-nm chips of yttrium vanadate for electro-optic research or silicon chips for semiconductor/IC purposes. If 200- or 400-mm long bars of lithium tantalate are required, the saw can be programmed to cut to the required shapes and parameters.

Circle No. 62 on Reader Service Card.

In Situ Emissivity and Temperature Measurement: LUXTRON's True-Temp™ 7150 uses ripple technology to provide noncontact, real-time wafer temperature measurements within 2°C in a range of 600–1000°C from outside the process chamber. The system monitors changes in wafer emissivity resolved to within 0.001. The alternating current effect in heating lamps used in RTP is detected in light reflected from the wafer surface and analyzed to determine the wafer's emissivity and thermal radiance. The system measures wafer surface temperature independent of emissivity, heat flow, reflected radiation, or chamber configuration.

Circle No. 63 on Reader Service Card.



Solid-State Laser Cutting System:

EzLaze™ from New Wave Research features single-shot, 1- or 5-Hz burst pulse repetition rates. The instrument mounts on Mitutoyo FS60 or A-Zoom microscopes and produces uniform repeatable cuts from 1 × 1 μm to 50 × 50 μm . Wavelengths of 1064, 532, and 355 nm are available. Energy output is 0.6 mJ; pulse widths vary from 5 to 7 ns, depending on wavelength. Applications include semiconductor failure analysis, design verification, and LCD repair.

Circle No. 67 on Reader Service Card.

Dual Illumination Stereo Microscope: Nikon's SMZ-1 incorporates episcopic (top light) and diascopic (bottom light) halogen illuminators in one unit for portable stereo imaging without attachments. The system has a continuously variable brightness control and an Epi/Dia stand with a three-way switch that allows users to select either episcopic or diascopic light or a combination of both.

Circle No. 68 on Reader Service Card.

Dielectric Spectrometer: The BDS 6000 from Novocontrol GmbH offers low-loss material analysis over a frequency range of 1 MHz to 1.8 GHz and a temperature range of -160 to +500°C. Advanced calibration and error compensation techniques are included in the software, with material analysis functions such as Cole-Cole plots, relaxation time analysis, and activation energy calculations. The software also includes evaluation of measured results by fast curve fitting and equivalent circuit calculations.

Circle No. 69 on Reader Service Card.

Ultrasonic Spray Chamber: The MYSTAIRE® Sonimist spray chamber from Misonix provides pretreatment of reactive gas flows and is suitable as an initial stage in a scrubbing system. The inlet expansion chamber area reduces gas velocities and allows ultrasonic mists to bring micron-scale droplets into contact, agglomerating micron-size particles in a fluid stream for subsequent removal. The large liquid surface and removal efficiency is created by the ultrasonic shock wave, which creates a dense liquid fog with large reactive surface area.

Circle No. 64 on Reader Service Card.

Materials Testing System: The portable LF500 from Chatillon™ can test up to 100 lb force (500 N) and offers a force measuring accuracy of $\pm 1\%$ with a speed accuracy of $\pm 0.2\%$. Maximum travel extension is 500 mm, with a speed range of 1–1000 mm/min. The standard operating software can handle up to 50 samples per batch. It records maximum load, load at break, extension at maximum load, and extension at break. It also provides the ability to recall and overlay multiple test plots. An optional console offers stand-alone operation.

Circle No. 65 on Reader Service Card.

3-D Finite Element Simulation Software: Fastflo software from Numerical Algorithms Group allows users to specify partial differential equation models and design solution algorithms. The software will solve geometrically complex 3-D problems and comes with mesh generation and post-processing facilities as well as interfaces to commercially available pre- and post-processors. The problem to be solved and the algorithm used are defined in terms of Fasttalk language. With optional modules, users can develop their own applications in areas such as fluid dynamics.

Circle No. 66 on Reader Service Card.

Automated Proximity Exposure System: OAI's Model 5000 system provides precise alignment and lithography for conventional bumping or photosensitive polyimide processes. The standard system handles up to 200-mm wafers; an expanded version can handle 300-mm wafers. The standard system includes robotics handling, uv light intensity control and feedback, and an auto-alignment system; however, it can be configured without the robot or auto-alignment options. Printing resolution is at least 5 μm at a 20- μm proximity gap.

Circle No. 70 on Reader Service Card.