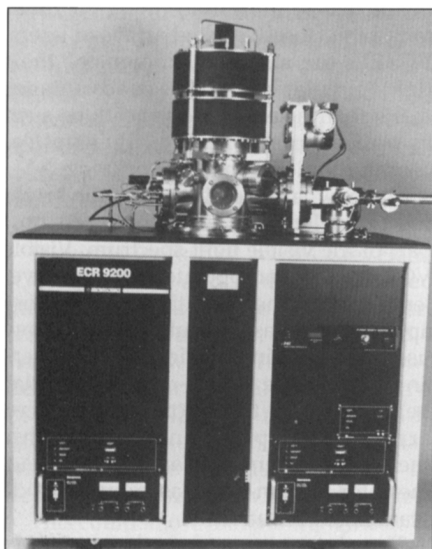


## RESOURCES

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



▲ **Diamond PECVD System:** Microscience's 9200D is designed for prototype coating research of diamond and DLC films using microwave plasmas. The system combines three process regimes: high-pressure high-temperature polycrystalline diamond processes, medium-temperature (300–500°C) low-pressure processes for polycrystalline diamond using ECR, and low-pressure low-temperature processing using ECR for diamondlike coatings on temperature-sensitive substrates. Users may work across all three regimes with varied temperatures and plasma conditions. Standard features include loadlock, turbo pumps, auxiliary diagnostic ports, Windows™ 3.1 control system, and data logging. Applications include low-temperature coatings on plastics, optical coatings, wafers, and magnetic media.

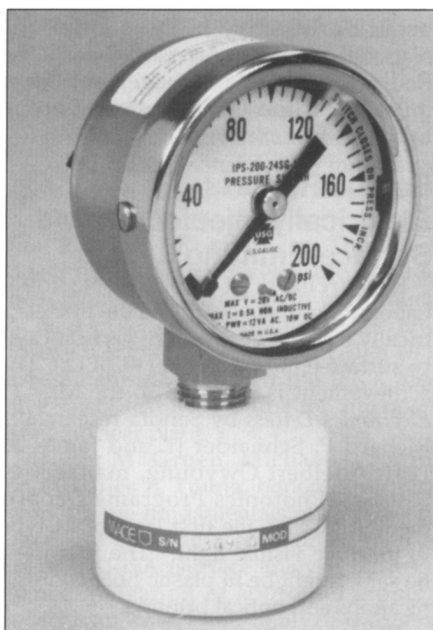
Circle No. 89 on Reader Service Card.

▲ **Scanning Surface Resistance Analyzer:** Self-contained system from Conductus is based on a confocal resonator and allows users to obtain nondestructive surface impedance measurements, including surface resistance measurement of large-area superconducting thin films or conducting wafers. Measurements are made at 94 GHz with 2 mΩ sensitivity and 1 mm spatial resolution after image processing. The system includes a mm-wave scalar network analyzer, signal conditioning hardware, computer-controlled motorized optical stages, and computer system with custom control and analysis software.

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▲ **Confocal Microscope:** The TCS<sup>4D</sup> by Leica uses a modular design system containing a miniaturized confocal ray path, single mirror scanner, multiple detectors, and an automatic filter system. The device is coupled to the Leitz DM R research microscope by a glassless phototube that preserves confocality and image quality. The system is controlled and images are processed by a workstation accessed with a PC through a Windows™ user interface. Images are displayed at 512 x 512 pixel resolution, or with 24-bit graphics at 1,024 x 1,024 pixel resolution.

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▲ **Teflon Gauge Protector:** The non-metallic 966B Gauge Protector from MACE Products features wetted parts fabricated from pure Teflon PTFE resin that is compression-molded in a Class 100 clean-room environment. All nonwetted parts are fabricated from PVDF to provide chemical resistance. The device allows standard pressure gauges to be used when monitoring corrosive liquids and gases. Gauge sizes are available in pressure ranges up to 125 psig (8.6 bar), and protectors may be supplied with or without gauges.

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▲ **Polymer Property Prediction Software:** BIOSYM Technologies' Synthia software provides estimates of polymer properties using empirical and semi-

empirical methods. Connectivity indices, essentially a numerical description of atoms and bonds, are used instead of group contributions and enable users to predict properties for polymers composed of carbon, silicon, hydrogen, nitrogen, oxygen, sulfur, fluorine, chlorine, and bromine.

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▲ **ASTM Standards Newsletter:** Free newsletter by the American Society for Testing and Materials provides scientific and technical information on the standards development activities of ASTM's 131 technical committees. Topics include ASTM's cooperative efforts with other international standards development organizations; issues of international environmental concern, such as biodegradability and recycling; current ASTM standards development activities; information on ASTM publications; and announcements of ASTM meetings and training courses.

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▲ **Portable Metal Testing and Sorting Unit:** The MAGNASORT from Foerster Instruments can identify and sort bulky and heavy metal materials according to chemical composition, hardness, tensile strength, surface decarburization, and heat treatment condition. No balancing or calibration is required. The unit, which weighs 2.6 lbs and can be powered by batteries or an external ac source, can be operated with a hand-held probe, 5 mm or 17 mm in diameter or with encircling coils, 10, 25, 37, 50, and 100 mm in diameter. Test results are shown on an integral LCD screen.

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▲ **Flange-Mounted Cryocoil for Turbomolecular Pumps:** The Cryogenerator P-50 from Polycold Systems International is a closed-loop refrigeration system that uses non-CFC refrigerants to cryogenically cool the cryocoil -130°C to cryocondense water vapor, thereby "pumping" it. This results in high-speed water vapor cryopumping (6,000 l/s intrinsic pumping speed) and vacuum to pressures below  $1 \times 10^{-7}$  torr. The stainless steel cryocoil is housed in a stainless steel flange-mounted spool piece, and custom flanges are available to fit customers' turbomolecular pumps.

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