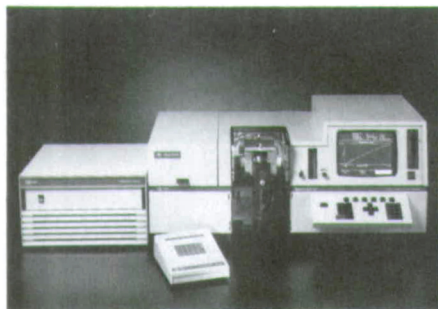


## RESEARCH RESOURCES

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

**Direct Atomic Absorption Analysis of Solids:** Sampling device allows direct atomic absorption analysis (AA) of solid samples. The Atomsource Direct Solids Atomizer can be used to determine all metallic elements measurable by AA, without the spectral and matrix interferences commonly encountered with x-ray fluorescence and arc/spark emission techniques. A low-pressure argon environment is used to sputter atoms into an optical path where



their absorption can be measured by any AA spectrometer. A single measurement cycle takes less than one minute. Varian Instrument Group, 220 Humboldt Court, Sunnyvale, CA 94086; (408) 734-5370.

**Robot Design Handbook:** Up-to-date coverage of a wide range of considerations for engineers working with robotics emphasizes an interdisciplinary approach and thoroughly examines procedures for designing robot component systems. The 384-page book provides a survey of robot manipulators and a critical commentary on robotics, tells how to produce better robots that are more cost effective, and explains strategies for enhancing robot coordination and sensor capability. Full coverage is given to the structural, mechanical, electronic, electrical, and software design elements involved. \$45. McGraw-Hill Book Company, 11 West 19th Street, New York, NY 10011; (212) 337-5945.

**Vacuum Products:** Comprehensive catalog lists prices and technical data on vacuum pumps, leak detectors, hardware, instruments and gauges, pumping systems, services, and supplies. Featured are new turbomolecular pumps and metal bonnet-seal valves. Varian Vacuum Products Division, Varian Associates, Inc., 611 Hansen Way, Palo Alto, CA 94303; 1 (800) 882-7426.

**Multikilowatt CO<sub>2</sub> Lasers:** Fast axial flow lasers of modular construction are available in models with 2-5 discharge legs. Each discharge leg produces up to 1,200 watts of continuous output laser power. The AF series can also be adjusted to provide laser power in three beam modes: TEM<sub>00</sub> for cutting, TEM<sub>01</sub> for welding, and Multimode for heat treatment. Each model can be up-

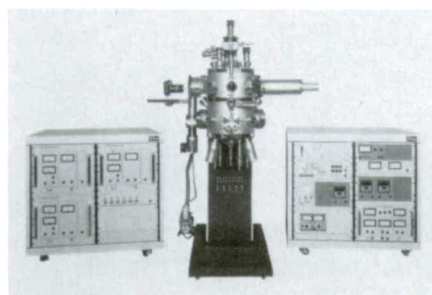
graded on-site. Ferranti Industrial Electronics Ltd., Professional Components Division, Dunsinane Avenue, Dundee, DD2 3PN, Scotland; 44-382-89311.

**Rapid Thermal Processor:** Production-line, fully automatic coldwall rapid thermal processor features cassette-to-cassette robotic wafer handling, multigas capability for single-cycle processing, and a high level of process parameter control. Designed for manufacturing high-density VLSI and ULSI devices, the model 4100 has a smaller footprint than conventional furnaces. AG Associates, 1325 Borregas Ave., Sunnyvale, CA 94089; (408) 745-1790.

**Stable Isotopes and Labeled Compounds:** Thirty-two page catalog lists all available stable isotopes and labeled compounds, with details on isotopes of deuterium, carbon-12 and 13, nitrogen-15, oxygen-16, 17 and 18, sulfur-34 and 36, chlorine-35 and 37, bromine-79 and 81, multiply-labeled compounds, noble gas isotopes, and reference standards. Icon Services Inc., 19 Ox Bow Lane, Summit, NJ 07901; (201) 273-0449.

**Vacuum Valves:** Six-page brochure describes valves for rough, medium, and high vacuum with low leak and outgassing rates and minimum flow resistance. Nine typical configurations are illustrated schematically. Leybold Vacuum Products Inc., 5700 Mellon Road, Export, PA 15632; (412) 327-5700.

**MBE System for Superlattice Film Growth:** Flexibility and features make the EL-10 research-scale molecular beam epitaxy system ideal for a wide range of superlattice films (from semiconductors and metals to ceramic and oxide compounds) and for the growth of high temperature superconducting films. The system can be used for both high and low melting point materials. A special inner chamber module



makes it possible to apply specific gases to the substrate surface during or after film growth without affecting the evaporation sources. Other options include e-beam, Knudsen, Kaufman and ECR sources, RHEED capability, and a thickness monitor. Microscience, 41 Accord Park Drive, Norwell, MA 02061; (617) 871-0380.



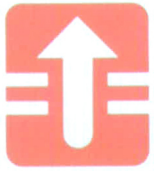
**Single-Jet Thinning Instrument:** Originally designed for preparing transmission electron microscopy specimens, the model 550C single-jet thinning instrument has also been used successfully in the selective etching of materials used in fabricating optical devices. A sensitive photo detector circuit typically detects perforations less than 10 microns, which produces a large electron transparent area while leaving a thicker outside support ring. South Bay Technology, 5209 Tyler Avenue, Temple City, CA 91780-3698; (818) 422-1839.

**Metals and Materials Information:** Twenty-page catalog describes services for metals and materials industries and features the EMA database, an on-line information source for polymers, ceramics, and composites. A series of published searches on engineered materials and new directories are also included, as well as a custom translations service offering technical translations on demand. Materials Information, The Institute of Metals, 1 Carlton House Terrace, London SW1Y 5DB, United Kingdom; 44-1-839-4071.

**Robotic Laser:** Small, lightweight, industrial 400-watt CO<sub>2</sub> laser can maintain an on-line speed of 5 meters per minute with only 5% downtime. The MF400, 1.5 m long and weighing only 62 kg, can be mounted directly on the robot platform. Ferranti Industrial Electronics Ltd., Professional Components Division, Dunsinane Avenue, Dundee, DD2 3PN, Scotland; 44-382-89311.

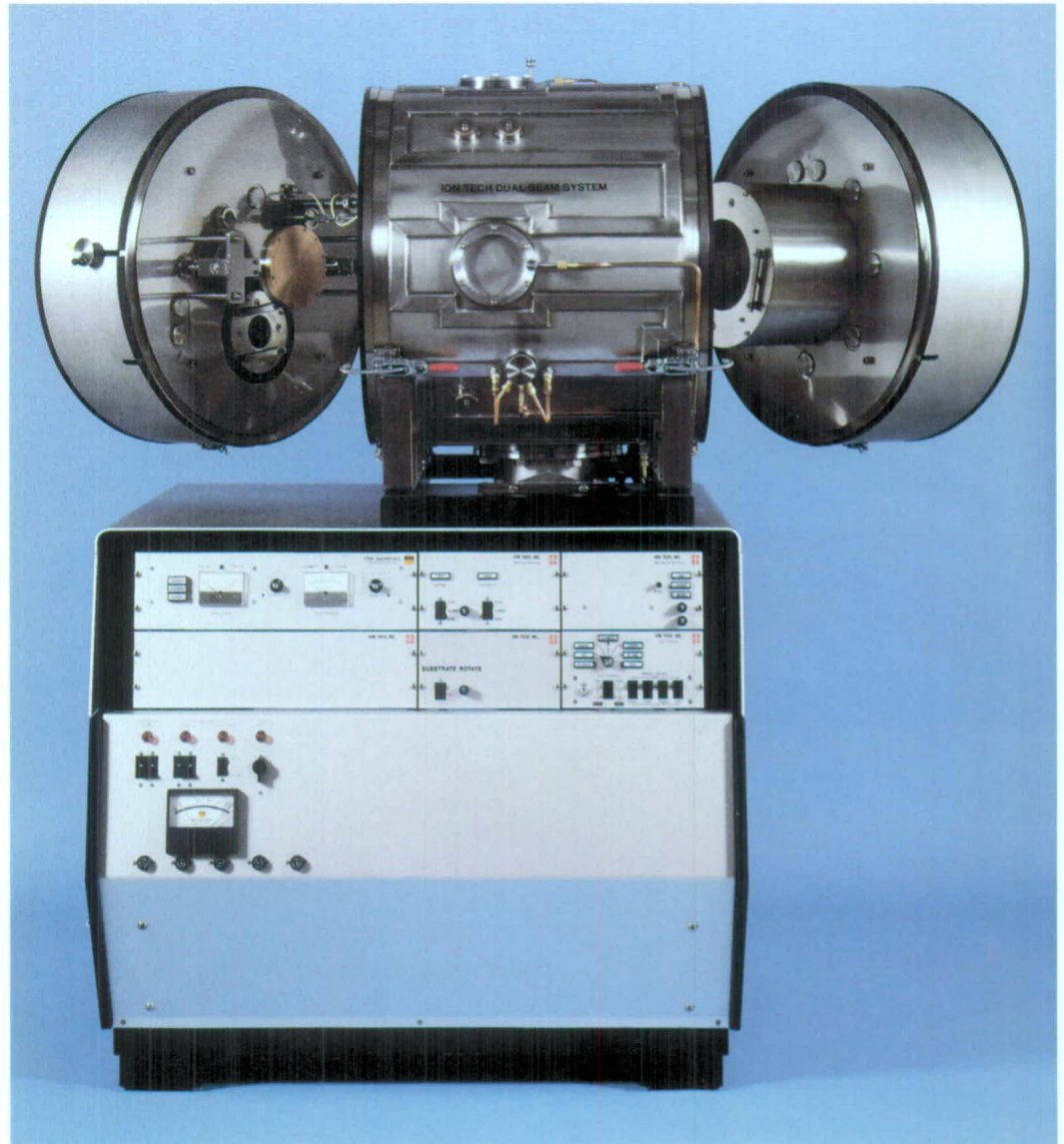
**Cathodic Protection Technology Clad Anodes:** Eight-page brochure describes platinum anodes used in impressed current cathodic protection, anode material types, and recommended uses. Platinum clad niobium with a copper core and platinum clad titanium are available in rod, wire, tube, and mesh. Tables list design considerations and specifications. Anomet Products, Inc., 830 Boston Turnpike Road, Shrewsbury, MA 01545; (617) 842-3069. □





# ION BEAM PROCESSING SYSTEMS

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Process  
Capability for  
Research  
or  
Production**



**T**oday, ion beam technology is an integral part of many demanding thin film processes and is ideal for optical films, complex alloys, superconductors and semiconductor processing applications. Ion beam process systems provide you with maximum versatility in deposition techniques; etching/reactive ion beam etching, surface cleaning, texturing, reactive and enhanced deposition, multiple source configuration and multiple targets selectable "in-situ".

Starting with your thin film and the results you want, Ion Tech has a solution for you. And, our solutions are more than just a vacuum process system and some hardware. At Ion Tech we include application and technical support, training, quality manufacturing and service as part of our commitment to a total solution. To find out how your thin film process will benefit from ion beam technology, give us a call. From sources to systems we have the solution for you.

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