

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

Science and Government Report:

Newsletter covers the "complexities of science funding, policy, and politics." Published 20 times per year, the eight-page issues detail new government policy publications, feature interviews with officials, and give "inside" information on Congress, the White House, and other government research agencies.

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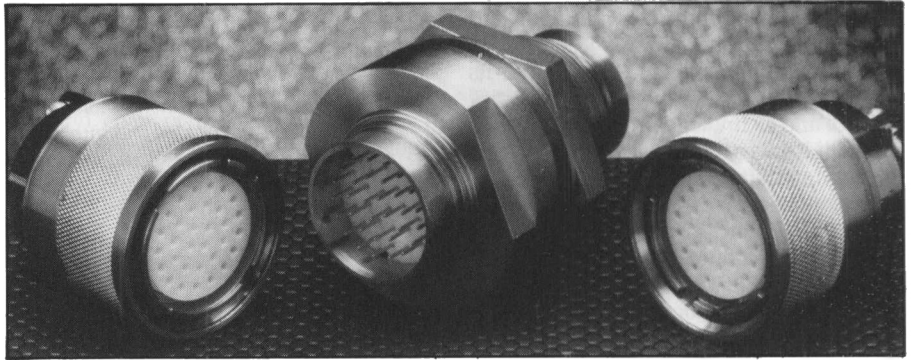
Metal-Organics for Materials Research:

Gelest's 100-page catalog describes a series of new intermediates for sol-gel processing of low expansion glasses, piezoelectric, specialty dielectric, and structural ceramics as well as sources for CVD and MOCVD of refractory, conductive, and superconductive coatings. Detailed physical properties, process reviews, and references for refractory, optical, and electronic applications enable readers to select process and performance for end-use applications. The catalog includes a wide range of metal alkoxides and metal diketonates, and full-color inserts describe applications, properties, and reactivity of elements. A special section on Group IV organometallics features organo-germanium compounds and organotin compounds with potential applications in infrared detectors and clear conductive coatings and in optoelectronics for high refractive oxide coatings.

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Thin Film Components and Custom Coatings:

Thin Film Concepts offers a single source for high quality supplies and services for the electronic, optical, and related industries. Custom coatings include rf, dc, and bias sputtering in multitarget machines, with complete capability for metals and dielectrics; e-beam evaporation in multicrucible, multigun systems featuring codeposition, substrate heat, glow discharge, and complete automation; and thermal evaporation for high vapor pressure materials, alloys, solders, and contacts. Thin film component manufacturing uses customer print or masks, or custom-designed components. Complete lithography (including the ability to pattern up to 6-inch square substrates with 2 micron linewidth), plating, and ion-milling for single and multilevel materials utilizing metal and resist masking can be provided. Coated substrates with a choice of metallizations and resistive coatings for complete hybrid and microwave applications are also available, as well as special high resistivity coatings. Single layer or multilayer metal-dielectric systems on silicon, alumina, or BeO can be designed to customer requirements, along with multilayer Cr/



32-Pin Type "E" Cryogenic Thermocouple Connector

Cu/Cr/polyimide on a choice of substrates. Process development engineering and consulting services are also offered.

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Writing SBIR Proposals: Seventh edition of *Writing SBIR Proposals: The Guide to Researching and Writing Competitive Proposals in the Federal Small Business Innovation Research Programs* leads applicants step-by-step through the process that develops a carefully crafted proposal. The 1992 edition includes: a thorough update on the program as well as new sample proposals; a new section called "Beyond SBIR" which discusses additional R&D funding opportunities for small companies in the federal contracting arena; and expanded information about each of the 11 federal agencies that make SBIR awards, including NSF, NASA, EPA, and NRC. Price: \$75 plus shipping. Other available SBIR program-related materials include the *Handbook of Patent, Copyright and Technical Data Rights in SBIR Awards* and *SBIR Proposal Writing Seminar* audio cassettes.

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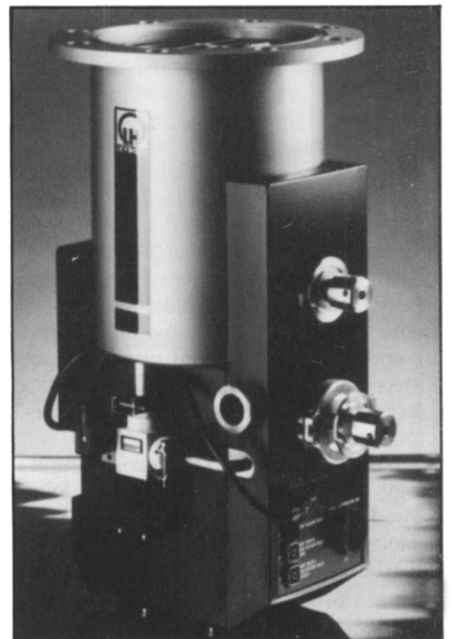
32-Pin Type "E" Cryogenic Thermocouple Connector: Designed for cryogenic/vacuum applications, Ceramaseal's 32-pin ceramic-to-metal double-ended thermocouple connector features an easy-to-use push/pull plug engagement and temperature capability from -253°C to +200°C. The rugged, corrosion-resistant, stainless steel shell connector is suitable for diverse applications. Extra features include a moisture-resistant seal kit and a spring-energized metal C-ring for cryogenic applications. The double-ended unit with two plugs provides for a quick disconnect design. Installation can be accomplished using a jam nut with metal C- or Buna N O-ring, or by adapting to ConFlat® flanges. Instrumentation and other thermocouple types are also available.

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Crypumping System with Decreased Regeneration Time:

Leybold's "FIRST" cryopumping system adds 225 hours to production time and increases return on investment by cutting cold-to-cold regeneration time from about 5 hours to 30-40 minutes using the new Coolvac 1500 FR cryopump and intelligent control system. Specially developed for sputtering, ion implantation, vacuum deposition systems, load locks, and transfer systems, "FIRST" delivers reliable performance with automatic control and monitoring of its regeneration cycle. Easily retrofitted, the system includes standard 24VDC and RS232 interface. Other features include compact modular construction, one-button operation, and high pumping speeds for water vapor, Ar, and H.

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Crypumping System with Decreased Regeneration Time

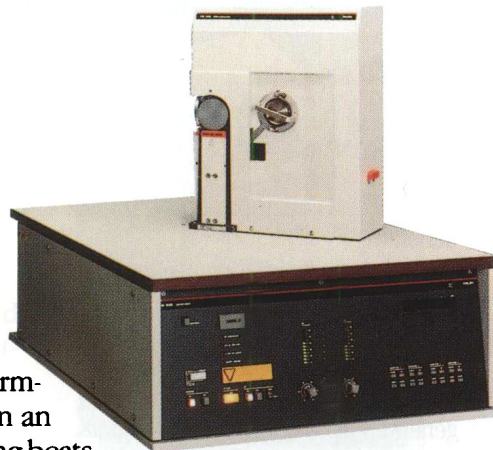
Whoever said good things don't come in small packages, didn't look at the Philips PW1840.



They didn't look at the price, either—under \$50,000* installed.

When it comes to price, performance and ease of installation in an X-ray diffraction system, nothing beats the Philips PW1840. We specifically designed the PW1840 to deliver fully automated, cost-effective qualitative and quantitative analysis in a system that won't take much space in your lab—or much of a bite out of your budget.

The PW1840 can be installed quickly on an ordinary counter-top. Its logical, fail-safe operation and reliable performance allows staff members to become productive with it, just as quickly.



Combining rugged construction, simple operation, an unique solid-state detector with integral electronic aperturing and a self-adjusting divergence slit, the PW1840 has been designed to withstand long hours of operation

in labs with reliability and safety.

Those same qualities that make the Philips PW1840 Compact Powder Diffractometer such a vital bench-top tool for the commercial and research facility, work just as effectively in the university or technical school.

For more details or a demonstration of the Philips PW1840, contact Philips Electronic Instruments Company, 85 McKee Drive, Mahwah, NJ 07430. Telephone (201) 529-3800.

**excluding taxes and delivery charges.*

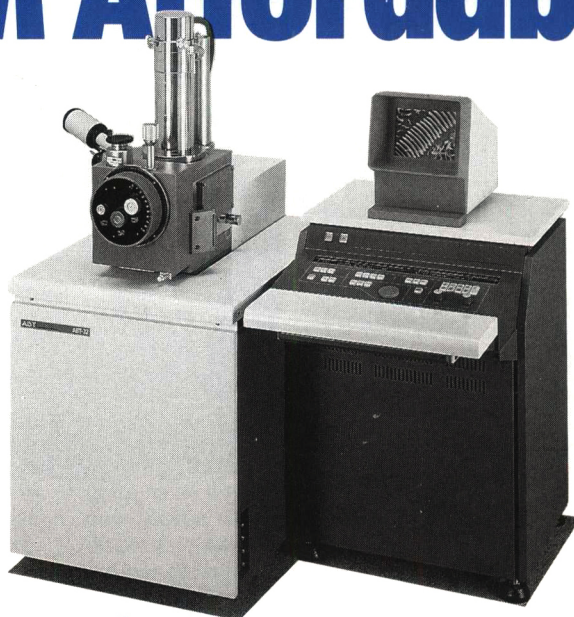
Please visit Booth No. 316-318 at the MRS Exhibit in San Francisco, April 28-30, 1992.



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PHILIPS

Topcon's Leasing Program Sets A New Standard For SEM Affordability.



\$1,050/month*

If you thought a research-grade SEM was beyond your reach, think again.

Thanks to Topcon Technology's new leasing program, you can now obtain a scanning electron microscope for as little as \$1,050 per month.* At the end of the lease period, you can purchase the system for only \$1.00.

Of course, the benefits of this program go beyond low cost.

A Topcon lease conserves your bank credit line, provides a hedge against inflation, and minimizes impact on your cash flow.

Designed with flexible terms, Topcon's leasing program also enables you to write off the interest as an

expense and gain the depreciation tax benefit.

Furthermore, Topcon offers an extended warranty that can be folded into the lease.

In short, Topcon's leasing program makes the industry's most innovative general purpose SEM line — ranging from our unique dual stage field emission ABT-150F to the fully digital, highly automated ABT-32 — even more affordable.

Our new field emission inspection SEMs for the semiconductor industry are also available under the leasing

program. These products include the ABT-2200, which features a conical objective lens and allows tilting of an 8-inch wafer to 60°, as well as the

ABT-2060, a dedicated CD measuring SEM with automatic cassette-to-cassette wafer handling.

Qualify For A Lease In 48 Hours

Topcon eliminates the bureaucracy often associated with leasing programs. To start the process, write Topcon Technologies, Inc., 6940 Koll Center Parkway, Pleasanton, CA 94566-3100, or call our toll-free number

1-800-538-6850.

SAMPLE LEASES	
MODEL	COST/MONTH
ABT-150F	\$5,500
ABT-150	\$2,900
ABT-60	\$1,700
ABT-32	\$1,050



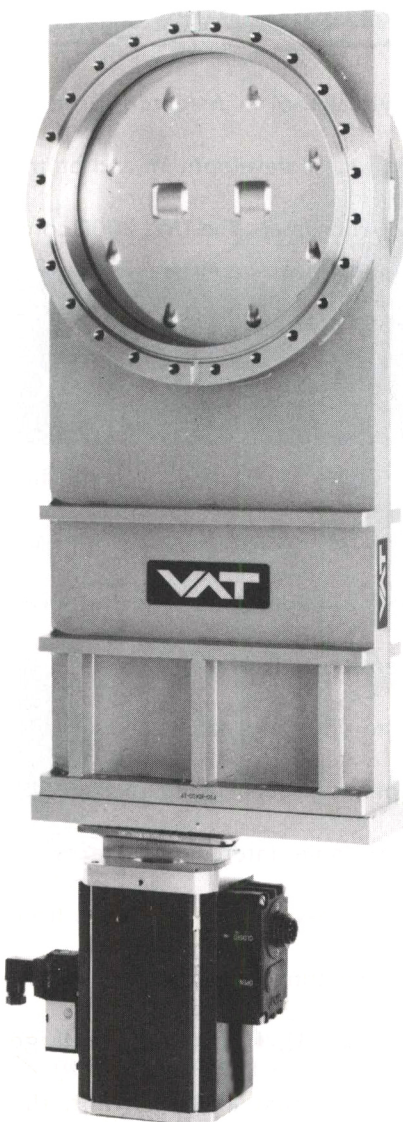
Please visit Booth No. 513 at the MRS Exhibit in San Francisco, April 28-30, 1992.

*Approximate cost based on 60-month lease and \$5,495 down at lease inception. Purchase price at end of lease is \$1.00. Rates subject to change.

No Trapped Volume, No Contaminants, No Hassles, *No O-ring.*

Conventional o-ring sealed vacuum valves can trap contaminants in the space under the seal, contaminating the UHV environment. They also have multiple seal lines, and changing the o-ring can damage the sealing plate, leading to leaks and unplanned downtime. Therefore, VAT developed the patented VATON seal.

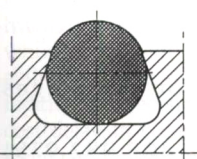
VATON seals are vulcanized directly to the sealing plate, creating a tighter, cleaner and longer lasting seal, to protect and enhance the UHV environment. With



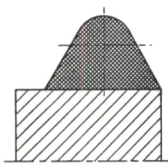
VATON, there's no o-ring twisting, pulling-out, or replacement error.

Eliminate potential o-ring hassles and choose from a variety of gate valves designed *specifically* for UHV. Or, for other applications, choose economical aluminum or stainless steel alternatives featuring other innovative technologies.

Call us today, and let VAT help optimize *your* vacuum system.



**Conventional
o-ring seal**



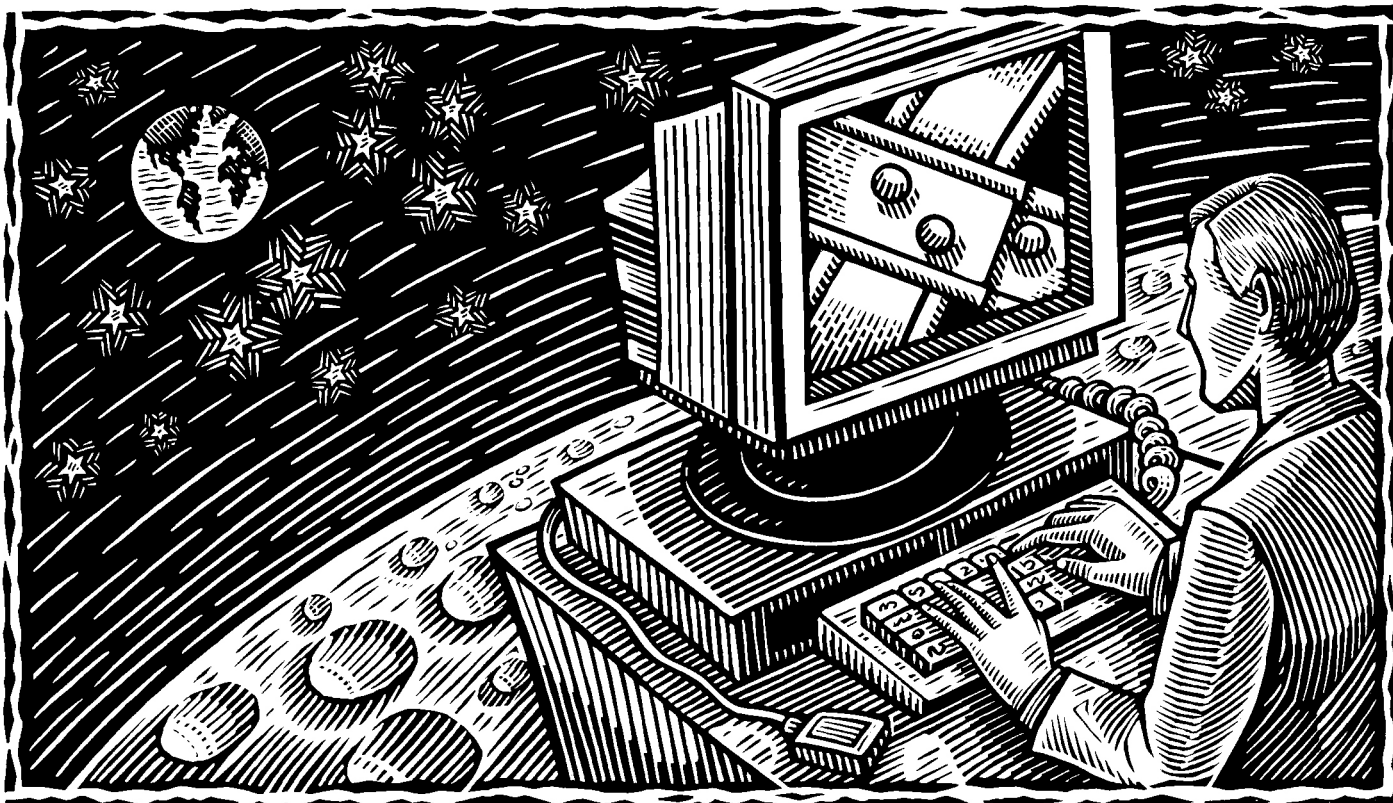
VATON seal



INCORPORATED

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What if you could see details like the rivets and the paint? Or would you rather visualize polysilicon in 3-D ...quantitate wafer surface roughness

...make pole gap measurements... monitor electrode surfaces in situ... analyze diamond film, carbon fibers, contact lenses...image liposomes, proteins and chromosomes? With scanning probe microscopy (SPM), nanometric, 3-D imaging of surface features in vacuum or ambient environments has become reality. And with the TopoMetrix TMX 2000, SPM begins its transition into a practical

analytical tool in research, product and process development and on the production line. The TMX 2000 com-

bines the flexibility of modular, open-architecture design with the ease of use of an integrated, menu-driven system. So you can tailor your system to your application and adapt it to your changing needs.

For example, interchangeable probe stages make it easy to switch from scanning tunneling (STM) to atomic force (AFM), from small to large samples. Just as important, the

TMX 2000 comes with the resources of a worldwide customer support organization. Our scientists and engineers, experts in SPM, will help you translate their

knowledge into analytical solutions for you. Whether you are planning to acquire an SPM or just curious, give TopoMetrix a call. We'll help you develop out-

of-this-world solutions to your down-to-earth application challenges. 408.982.9700. Fax 408.982.9751.



WHAT IF YOU COULD SEE THE EIFFEL TOWER FROM THE MOON?