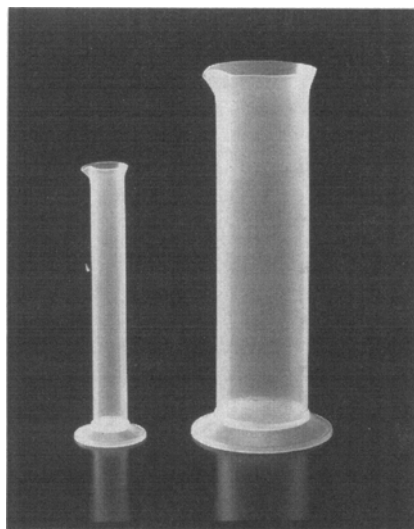


Materials/Products

Norton Performance Plastics has introduced a new line of graduated Chemware cylinders molded from Teflon PFA resin for *measuring aggressive acids or ultra-pure materials* where possible compro-



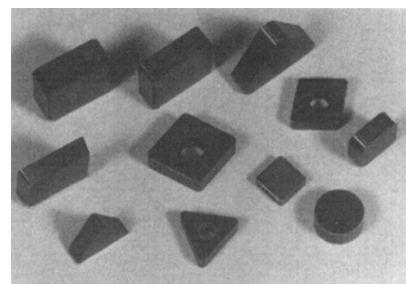
Norton Performance Plastics

mise of the contents is a concern. The cylinders are ideally suited for use in metal analysis, environmental analysis and biotechnology applications. Sizes range from 10 mL to 2 liters and the cylinders can withstand temperatures ranging from -450 to 500 °F. For further information, contact Norton Performance Plastics Corporation, 150 Dey Road, Wayne, NJ 07470-4699; tel: 201/696-4700; fax: 201/696-4056.

Enerpac has introduced a line of Turbo pumps for a range of production workholding applications. The pumps require air pressures between 40 and 120 psi (2.8-8.3 Bar) to power standard 5000 psi QDC and workholding hydraulic systems. Air consumption for the pumps is only 15 SCFM, approximately 25% below the nearest competitor. Another feature of the pumps is the use of sound suppression materials which enable the pumps to operate at less than 90 dBa, 50% below com-

petitive models. For further information, contact Enerpac, 13000 West Silver Spring Dr., Butler, Wisconsin 64007-1093; tel: 414/781-6600; fax: 414/781-1049.

NTK Cutting Tools has introduced HC5, a tough grade of black ceramic that gives users a *low cost alternative to conventional grinding in the hard turning of RC 58-62 steels*. This fine micro-grained cutting tool ceramic provides the hardness and increased stability necessary to hold tight tolerances during the hard turning machining process. Its increased mechanical strength effectively resists chipping and flaking, resulting in extended tool life. Silicon nitride is available in three grades: SP2 with excellent notch wear resistance and a gold-colored multi-ceramic coating that extends tool life; SP5 that can machine nickel-based alloys up to ten times faster than carbide; and SX8 that can easily handle the shock of highly interrupted cuts. For more information, contact NTK Cutting Tools, 39205 Country Club Drive,



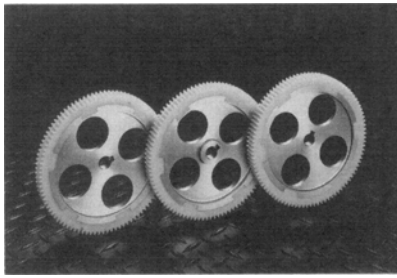
NTK Cutting Tools

Suite C-30, Farmington Hills, MI 48331; tel: 810/489-0123; fax: 810/489-095.

Specially engineered gears, *precision machined from integrally cast composites* are now available from Intech Corporation for solving drive problems encountered in the high temperature, highly corrosive computer chip manufacturing process environment. The high performance Intech Power-core gear combines the self lubricating, quiet performance of a Lauramid body with large, stainless steel hub to form an inseparable unitized



Enerpac



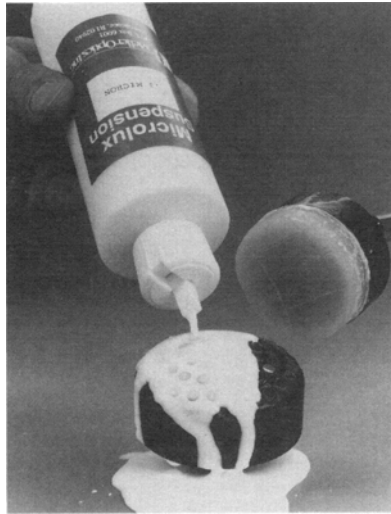
Intech Corporation

bonded gear. Maximum high/low temperature fatigue strength is -60 to $+120$ °C with excellent long-duration load sustaining capacity. For further information, contact George Bartosch, Intech Corporation, 250 Herbert Ave., Closter, NJ 07624; tel: 201/767-8066.

ASC Double Arm Uncoilers from **ASC Machine Tools, Inc.** are manufactured to *provide long life and low maintenance in operation*. Tapered roller bearing located in the main bearing housings, support the mandrels of the 20,000 and 30,000-lb arm models (9072 and 13,608). All heavy capacity double arm uncoilers feature wedge-type expansion, utilizing three rugged mandrel segments pinned to the large diameter main mandrel shaft. For ease of maintenance, every uncoiler includes a removable, roll-cut hydraulic power pack with a self-contained track and quick disconnect on hoses. For more information, contact ASC Machine Tools, Inc., N. 900 Fancher Road, Spokane, WA 99212-1619; tel: 509/534-6600; fax: 509/536-7658.

Donaldson Company's High Purity Products division announces a *new line of custom PTFE particulate and activated carbon filters*. Donaldson manufactures both particulate and chemical contaminant filters including filters for personal respirator cartridges, room air cleaners, biosafety benches, cleanroom environments, business machines, commercial aircraft and automotive cabins, disk drives, as well as catalytic oxidation systems for air pollution control. For further information, call 1-800-727-5665.

A line of water-based calcined alumina suspensions for grinding, lapping, and polishing a wide range of optical materials is available from **Meller Optics, Inc.** Microlux alumina suspensions feature 99.98 purity and are offered in 8 particle sizes ranging from 0.05 to 3.0 microns. Ideal for polishing ferrites, zinc selenide, zinc sul-

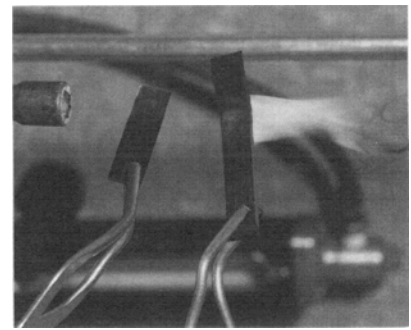


Meller Optics, Inc.

fide, germanium, silicon, barium or calcium fluoride, and stainless steel and other hard materials, they can *produce surface finishes as fine as 10 scratch and 5 dig*, depending upon the material. For further information, contact David Lydon, Marketing, Meller Optics, Inc., 120 Corliss St., PO Box 5001, Providence, RI 02940; tel: 800/821-0180 or 401/331-3717; fax: 401/331-0519.

Ansell Edmont Industrial Inc. has introduced a new *cut-resistant work glove* designed specifically for use in applications such as papermaking, plastic parts handling, metal working, and meat processing. The new glove, called SafeKnit, is made of a blend of patented Spectra fiber and lightweight fiberglass. This unique blend of materials ensures the high level of cut and abrasion resistance needed to handle sharp objects or tools. Five sizes and three styles are available. For further information, call 1-800-800-0444.

Scientists at the **Naval Research Laboratory** are currently exploring the use of phthalonitrile-based flame-retardant composite resins for a variety of marine and aerospace applications. These composites offer *potential benefits in areas ranging from weight improvement, corrosion control, and less maintenance to lower thermal conductivity, reduced acoustic and magnetic signatures, and greater versatility in component design*. During preliminary flammability tests, the NRL-developed composites met the Navy's flammability requirements of MIL-STD-2031 for ignitability and heat release. The resins also show superior strength values



Naval Research Laboratory

and have the potential for long-term use in systems requiring exposures to temperatures as high as 550 °F. For further information, contact J. McNair, Naval Research Laboratory, Public Affairs Branch, Code 1230; tel: 202/767-2541; fax: 202/767-6991.

The 3146 self-priming adhesive/sealant from **Dow Corning** is designed to meet design, manufacturing and materials engineers' needs to *eliminate volatile organic compounds (VOCs) and improve electronics packaging efficiency in aerospace and avionics applications*. The one-part adhesive/sealant features a new, patented adhesion technology that offers very good unprimed adhesion to gas and most metals. It also provides excellent unprimed adhesion to select plastics and FR-4 boards. Other features include its non-sag non-flowable consistency that allows the product to be applied overhead or on vertical seams or joints, and its reaction with ambient moisture to cure at room temperature with no exotherm or corrosive by-products. For further information, contact Dow Corning Corporation, Dept. P490, PO Box 1593, Midland, MI 48641-1593.

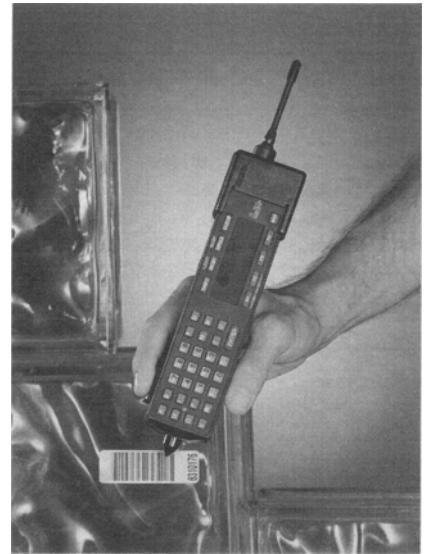
Celanex 16 Series modified polybutylene terephthalate (PBT) resins from **Hoechst Celanese Corporation** provide *substantial cost savings and productivity increases* compared to competing, flame-retardant PBT resins. Cycle time reductions of 2-40% with lower melt temperatures and injection pressures have been achieved. Overall cost savings are up to 20-30% compared to competing resins. In thermal aging tests at 180 °C, 30% glass-reinforced Celanex 16 Series resin retains 98% of its tensile strength after 100 hours compared to a 78% tensile-strength retention in a leading competitive FR-PBT. Under the same test conditions, unfilled Celanex 16 Series resin retains 90% of its tensile strength versus a 52% reten-

tion in a similar competing FR-PBT grade. For further information, contact Hoechst Celanese Information Center, 114 Myfield Ave., Edison, NJ 08837; tel: 800/235-2637.

OLFLEX-FD 90- and OLFLEX-FD 890 CY continuous flex robotic cables by **Olflex Wire & Cable, Inc.**, are designed with special jacketing compounds to *provide outstanding resistance to oils and chemicals*. UL approved and CSA certified, these cables feature a 600 V working voltage, -5 to +90 °C temperature range, finely stranded bare copper conductors, specially formulated PVC insulation, and non-wicking tape. Recommended applications for both models include gantry robots, pick-and-place units, automatic handling equipment, machine tools, conveyor systems, and any other application

in which there is continuous flexing. For further information, contact Olflex Wire & Cable, Inc., 30 Plymouth Street, Fairfield, NJ 07004; tel: 800/353-3539; fax: 201/575-7178.

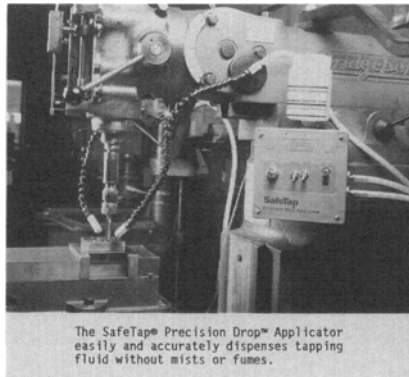
Hand Held Products introduces the Micro-Wand RF, *claimed to be the smallest lightest integrated RF bar code scanner in the world*. The instrument utilizes highly efficient surface acoustic wave (SAW) technology to provide two-way radio communications. Weighing 10 ounces, the Micro-Wand RF integrates a scanner, microprocessor, full alphanumeric keypad, 4X20 character display, batter, and RF transceiver. For further information, contact Hand Held products, 8008 Corporate Center Drive, PO Box 472388, Charlotte, NC 28247; tel: 704/541-1380.



Hand Held Products

Processing/Equipment

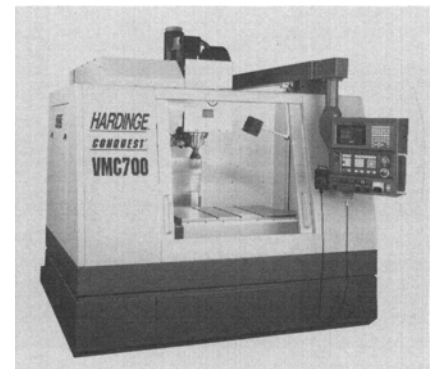
The world's first *fully automatic coil-packing line* is boosting the efficiency of operations at the **Kawasaki Steel Chiba's No.1 cold strip mill** as much as six-fold. The new line has the flexibility to cope with the full range of packaging needs, from internal paper packing to external metal plates. It was jointly developed by KSC and Shinwa Package, and is boosting throughput from 100 coils/employee/month to as high as 600 coils. The packaging of each coil typically takes no more than three minutes for the coils produced at the No.1 mill: typically thin grades of tin-plate with external diameters of 670-1,850 mm with widths of 580-1230 mm and weighing up to 16 tons each. A second, similar installation is being planned at the No. 2 cold strip mill. For further information, contact Kawasaki Steel Corporation, Hibiya Kokusai Bldg., 223 Uchisaiwaicho, Chiyoda-ku, Tokyo 100 Japan; tel: 03/35973111; fax: 03/35974868.



ITW Fluid Products Group

net mounts for easy portability and is available with one or two nozzles. For further information, call 800/443-9536.

Hardinge Brothers, Inc. has introduced their VMC700 Vertical Machining Center *designed for heavy-duty milling, drilling, and rigid tapping operations*. The VMC 700 offers as standard features: 15-hp, 10,000 rpm spindle drive, three axis travel, and CNC control. A 20-tool swing-arm bi-directional automatic tool changer has 2 second tool-to-tool (6 second chip-to-chip) change time. Other features are heavy-duty linear guideways and 787 ipm traverse rates for all axes. For further information, contact Hardinge Brothers,



Hardinge Brothers, Inc.

Inc., Elmira, NY 14902-1507; tel: 607/734-2281; fax: 607/734-8819.

Edison Welding Institute has joined 16 US industrial partners in a two-year \$32.9 million laser machine program awarded as part of the White House's Technology Reinvestment Project. The Precision Laser Machining Program will *fund the development of new high-speed high precision machine tools*. The tools will be used to raise the quality and lower the cost of cutting, drilling, welding and surface treatment processes used to make aircraft, aerospace platforms, automobiles, heavy equipment and ships. Manufacturing experts estimate, for example, that the new laser machining techniques will reduce

An economical, pneumatic "non-misting" tapping fluid application system that *eliminates coolant disposal costs* has been introduced by **ITW Fluid Products Group**. The SafeTap Precision-Drop applicator effectively dispenses lubricant on cutting tools with its flexible nozzle positioning and separate adjustment controls for air and fluid. The unit works with low air pressure (90 psi), features special mag-

auto production costs by about \$185 per car by simplifying assembly and welding processes. EWI is developing a process database containing a collection of existing and newly developed laser processing data, as well as a laser machining handbook. For further information, contact James P. Hurley or Ted Ford, Edison Welding Institute, 1100 Kinnear Road, Columbus, OH 43212; tel: 614/486-9400; fax: 614/486-9528.

Sternvent Company, Inc. has introduced a *small, compact heavy duty dust collector* to collect fine powders and dust by-products from chemical, pharmaceutical, and metal working operations. The Sternpulse Jet Pulse cartridge style dust collector, Model SPV-4 features a 2000 CFM, 5 HP spark-proof side-mounted blower. Choices of filter media for the SPV-4 include non-woven cellulose, polyester, and polypropylene and features an efficient automatically timed compressed air cleaning system, which enables the unit to operate continuously. For further information, call 201/488-1146.

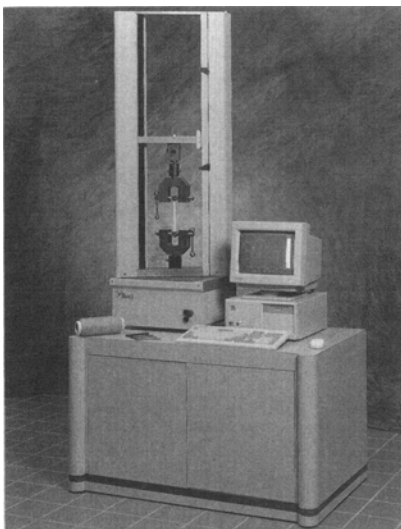
Testing/Masurement/Evaluation

Because dynamic measurements are seldom routine, **PCB Piezotronics** has introduced a *24-h sensor hotline service*. Customer service representatives are available by dialing 716/684-0001 to provide pricing information, delivery schedules, order expediting, and to solve unexpected measurement problems. If the question is of a highly technical nature, the customer can be connected directly to a product specialist. For extremely urgent test requirements, equipment can be shipped in a matter of hours. For further information, contact PCB Piezotronics, Inc., 3425 Walden Avenue, Depew, NY 14043-2495; tel: 716/684-0001; fax: 716/684-0987.

QTest, a division of MTS System Corporation, has announced *new capabilities for their full line of mechanical test machines*, called Application Masters. Each Application Master is a software template that provides the machine control, graphing, and results required for a particular type of test. For example, the Textile Tensile Master includes all the requirements to run ASTM D-1682, D-1117, D-5034,

United States Filter Corporation has introduced its Membralox Silverback metal cleaner recycling system, *capable of removing oils and other contaminants from high-temperature alkaline degreasing baths*. The system recycles the aqueous cleaners typically found in the metal finishing, plating, machining, and fabricating industries. The unit is constructed of stainless steel and uses a ceramic membrane to remove contaminants at temperatures of up to 220 °F. Standard units are available to recycle cleaners at rates ranging from 150 to 4000 gallons/day. For further information, contact US Filter/Membralox, 181 Thron Hill Road, Warrendale, PA 01586; tel: 800/525-0658 or 412/772-0044; fax: 412/772-1360.

MHI Machine Tool USA, Inc. has introduced the gear grinder model ZG400CNC that can produce highly precise gears with AGMA Class 14. To help *guarantee such high accuracies*, the ZG400CNC utilizes the following accuracy-optimizing features: efficient spindle cooling; a Mitsubishi Precision Scale Feedback System; and an automatic thermal displacement compensation design (with overall machine symmetry, open center column for



QTest

D-5035, and other industry standard methods. The unique computer automated design of the QTest systems makes it easy to add new capability by simply adding software. For further information, contact QTest, 1001 Sheldon Drive, Cary, NC

air circulation and heat dissipation, and equal wall thickness throughout), which orients thermal elongation in a predictable and controlled manner. Wheel spindle speeds range from 200 to 6000 rpm. For further information, contact MHI Machine Tool USA, Inc., 907 W. Irving Park Rd., Itasca, IL 60143-2023; tel: 708/860-4222.

FANUC Robotics North America, Inc. has expanded its product range with five systems, including a heavy payload robot featuring the *industry's first integrated arm and controller*, and a tabletop robot for lightweight machine load/unload, material handling, material removal, and welding applications. The S-420-i with its integrated arm can handle up to 155 kg. The LR Mate 10 can handle such operations as lathe load/unload operation and small-part MIG welding. Specially-configured two-axis linear gantry robots have also been introduced with independent or simultaneous control of horizontal and vertical axes that can handle payloads up to 65 kg. The ARC Mate 120 and S-6 robots both have six axes. For further information, contact FANUC Robotics North America, 2000 S. Adams Rd., Auburn Hills, MI 48326-2800; tel: 810/377-7000; fax: 810/377-7366.

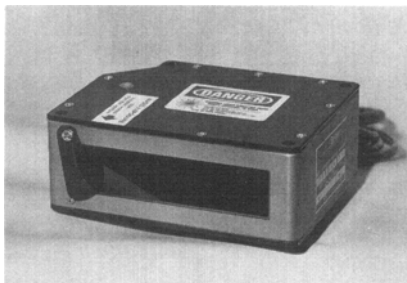
27513; tel: 919/677-0263; fax: 919/677-2480.

A contract for an *ultrasonic inspection system* to be used for initial inspections of pressure vessels has been awarded to **ABB AMDATA by Westinghouse Plant Apparatus Division**. ABB AMDATA will supply its IntraSpect UX4 model, a UNIX-based, four-channel ultrasonic system. A manually operated arm, deploying multiple-element transducer modules will be wed with Westinghouse-supplied transducers. ABB AMDATA will group transducers into surface-complying modules to minimize scan time and will also provide training for Westinghouse personnel. For further information, contact Asea Brown Bover Inc., 1000 Prospect Hill Road, PO Box 500, Windsor, CT 06095-0500; tel: 203/285-3285; fax: 203/285-5606.

Introspect Technologies, Inc. has released iRAT: the introspect real-time analysis toolset. iRAT is an *advanced software engineering tool used to analyze*

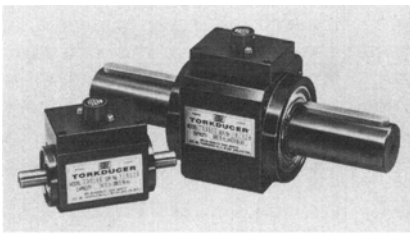
runtime performance of time-sensitive systems. With an easy-to-use windowing interface, iRAT enhances the user's ability to understand and predict the timing behavior of a system and therefore support development decisions during requirements, design, integration, or upgrade phases. From identifying potential timing and scheduling risks to troubleshooting existing performance problems, iRAT's unique capabilities allow analysis of real-time systems before, during, or after implementation. For further information, contact Michael Marko, Introspect Technologies, Inc., 1765 South 8th Street, Suite T8, Colorado Springs, CO 80906-1952; tel: 800/868-6126 or 719/634-5744; fax: 719/634-1163.

A compact, self-contained high speed non-contact laser-based industrial dimensional gauging sensor that **provides exact and reliable level measurement of aluminum castings**, ensures a consistent pouring level to reduce spillage and has numerous other applications to ensure quality from start-up to the finished product in the aluminum and metalworking industry has been introduced by **Selective Electronic, Inc.** The SLS 5000 series supplies data to a PLC control system, which controls the pin position to ensure a consistent flow and pour rate. A built-in processor provides data averaging and filtering, and ac-



Selective Electronic, Inc.

curacy is within 0.2%. A unique dynamic laser feedback loop allows accurate measurement without regard to color, ambient light changes, variations in object reflectivity speed, temperature of material or general plant environmental conditions. Measurement ranges from 6 to 200 mm and stand-off ranges are from 50 to 300 mm. For further information, contact Selcom, 21654 Melrose Ave., Southfield, MI 48075; tel: 818/355-5900; fax: 818/355-3283.

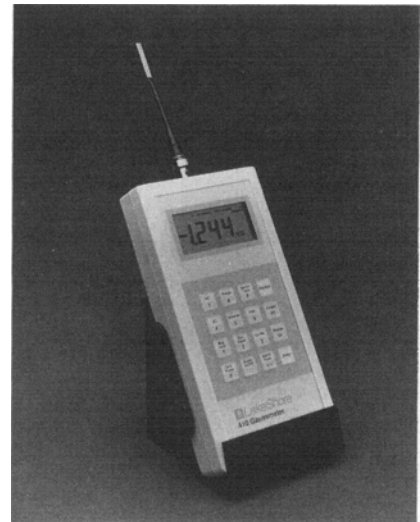


GSE Inc.

A new line of noncontact rotary torque sensors has been introduced by the **Measurements and Controls Division of GSE Inc.** Called the **Torkducer** line, the new design is a patented advancement that enables low-cost torque sensing for a wide variety of applications. The Torkducer uses magnetoelastic principles to measure static or dynamic torque, without coming in contact with the shaft. The sensor consists of a proprietary shaft with a pair of precision exciting and sensing coils. The noncontact design eliminates the need for brushes or slip rings, making the sensors virtually maintenance free. The design also allows the sensor to be used in hostile plant environments. For further information contact GSE Inc., 23640 Research Drive, Farmington Hills, MI 48335; tel: 810/476-7875, ext. 3021; fax: 810/476-7249.

The **SmartTest Endurance Testing System** from **Endura-Tec Systems Corporation** provides portable, **high-performance cyclic endurance testing** for any laboratory situation. Performing precise, long term, high frequency tests with ease, this pneumatic powered test frame has added servo control technology to provide a clean yet inexpensive approach to endurance testing. Very accurate for high resolution/low force applications, the SmartTest system eliminates contamination possibilities common with hydraulic systems and is easy to maintain and operate. Rated at 2800 pounds static, the Series 3040 Test frame can be used to cyclically load products at frequencies of up to 25 Hz, and also performs standard ASTM Tensile (D638), Compression (D695), Fatigue (D671), and Creep Tests (D621). The system comes with software that provides transducer calibration and ranging, data acquisition, display and analysis. For further information, contact Kent Vilendrer, Endura-Tec Systems Corporation, 10915 Valley View Road, Eden Prairie, MN 55344; tel: 612/828-9937.

Lake Shore's model 410 hand-held gauss meter is designed for **accurate magnetic**

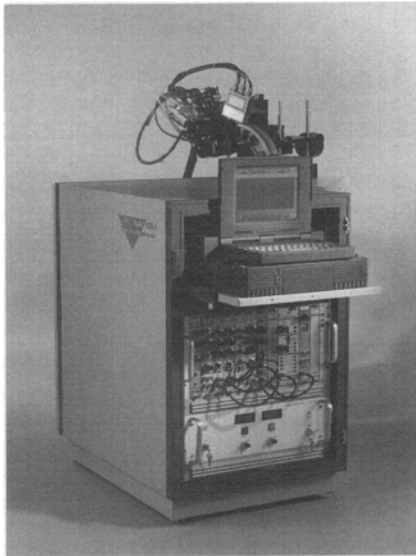


Lake Shore Cryotronics, Inc.

field measurements from 0.1 G to 20 kG (0.01 mT to 2T). Most operating functions can be selected via the front panel keypad with one or two keystrokes. The 410 displays in gauss or tesla, AC or DC magnetic field values with a 100 mG resolution on the 200 G range. Other features include alarm capabilities, autoranging option, maximum hold function, zero probe function, and a filter function. For further information, contact Lake Shore Cryotronics, 64 East Walnut Street, Westerville, OH 43081-2399; tel: 614/891-2243; fax: 614/891-1392.

Riegl U.S.A., a marketer of time-of-flight pulsed laser range finders for **non-contact, long distance measurement to solid or liquid surfaces**, as well as speed sensors, motor scanners and radar systems, is expanding into the steel, foundry, aluminum and metalworking markets with technology specifically developed for those industries. Applications include spotting or positions of vehicles, cranes, ladles, and other such equipment, level measurement of hot liquid metal in ladles, tundishes, torpedo cars, and general level measurement in harsh industrial and/or explosive endangered environments, positioning and profiling hot slabs, as well as measuring material level in large tanks and silos. For further information, contact Riegl U.S.A., 8516 Old Winter Rd., Suite 101, Orlando, FL 32808; tel: 407/294-2799; fax: 407/294-3215.

The **TECH Model 1630-3 Stress Analyzer**, a **mobile instrument that works equally well in lab or shop** applications, is now available from **TEC** for measuring resid-



TEC

ual stresses, applied stresses, and retained austenite content. This self-contained x-ray system is compactly housed in a 30X33X20" rolling cabinet. Its portable diffractometer uses a standard 25-foot cable, allowing nondestructive measurements on a wide range of parts. A highly sensitive PSPC detector accurately monitors x-ray intensity with a low per (100 watt) x-ray tube. For further information, contact TEC, 10737 Lexington Drive, PO Box 22996, Knoxville, TN 37933-0996; tel: 615/966-5856; fax: 615/675-1241.

Researchers at the **Naval Research Laboratory's Optical Sciences Division** have developed a technique for "interrogating" arrays of fiber-optic Bragg grating sensors for use in structural sensing. The new technique enables fiber cables, with multiple sensor elements, to be embedded within or surface attached to a variety of structural materials, without degrading the intrinsic strength of the structure. The new technique *allows the strain, at a number of locations distributed over a structural component, to be assessed in real-time*



Naval Research Laboratory

with a very high resolution and with wide dynamic range. NRL has developed a cost-effective process for fabricating the gratings. For further information, contact Dom Panciarelle at 202/767-2541.

Optro-Mechanics (USA) Corp. has introduced Macerl Aubert S.A.'s new Model MA-175 *measuring projector equipped with digital indicator.* The 150X70 mm coordinate table is equipped with scales, a digital electronic calculator and a trans-

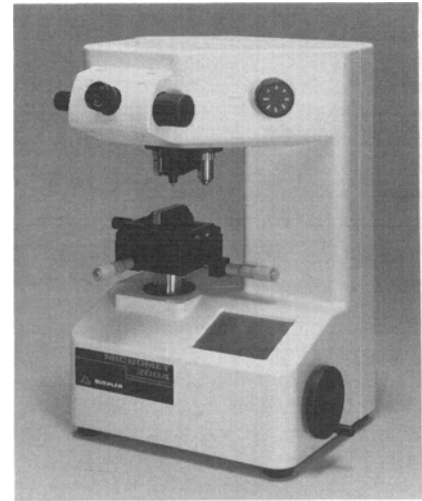


Optro-Mechanics (USA) Corp.

mitted illuminator. The projector can measure 150 mm in the X direction and 70 mm in the Y direction with a resolution of 0.001 mm. The objective has a magnification of 20X and the vertical adjustment is 100 mm. For further information, call 1-800-890-3333.

John Chatillon & Son, Inc. has introduced an upgraded version of their DAPMAT materials testing software program. Marketed as DAPMAT 3.0, the new program *offers expanded user-defined test parameters, increased test report formats and doubles the number of test results* which can be examined at any given time. The test data can be downloaded to spreadsheet or database programs for generation of customized test reports. Available as an upgrade for in-use LR < LRX and LS materials testing machines, the 3.0 version of DAPMAT is being shipped with new orders for Chatillon materials testing machines and supporting DAPMAT software. For further information, contact, Al Kamperman at 910/668-0841.

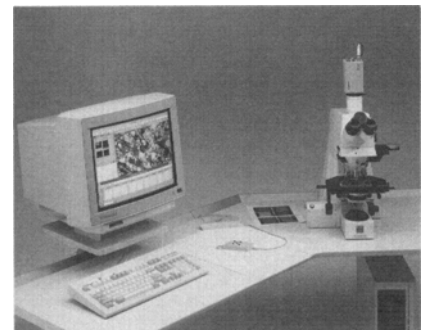
Buehler Ltd. has introduced the Micromet 2004 *microhardness tester that*



Buehler Ltd.

has a digital display with user-friendly menu icons, auto turret performance of loading and return to measuring objective, and a non-rotating eyepiece for ease of use. Knoop or Vickers microhardness tests can be performed on a variety of materials including electronic components, composite materials, and superalloy materials. Other features include: automatic load application and release, variable dwell time from 5-99 sec, zero set point memory, precision vibration resistant state, and built in scale conversions. For further information, contact Buehler Ltd., 41 Waukegan Road, Lake Bluff, IL 60044-1699; tel: 708/295-6500; fax: 708/295-7979.

The Microscope Division of **Carl Zeiss, Inc.** has announced that it is the *exclusive representative for the Kontron KS series of image analysis systems* for research, quality control, and other technical applications. The KS series provide an unusual degree of user guidance which makes it possible to solve even complex image analysis problems quickly and easily. A new contour-based measurement algorithm ensures extremely fast measure-



Carl Zeiss, Inc.

ments and the proven Kontron macro interpreter and other functions allow complex image analysis problems to be divided into simple steps that are common to most applications. Three models are available that can be equipped with a digital camera for high-resolution true color

University View

Drexel University, with funding from four American Iron and Steel Institute companies, has conducted fundamental studies on using a low-power electrostatic charge on water sprays for cooling of materials such as continuous casting molds. The results of the basic studies indicated promise for this technique *to improve the rate of cooling and the efficiency of the coolant*. CMP is providing funding for the next phase which involves collecting quantitative data from laboratory experiments.

Researchers at the **University of Alabama-Huntsville** have developed a laser

images (3000X2300 pixels). For further information, contact Carl Zeiss, Inc., Microscope Division, Thornwood, NY 10594; tel: 800/233-2343; fax: 914/681-7446.

system for cutting preheated steel. The laser system *can cut preheated steel up to 6 inches thick* and they believe the system will cut up to 10 inches. At this time, the laser system does not appear to be cost effective for cutting thick preheated steel compared to oxyacetylene torches. However, it is believed that the laser system may become commercial in a few years as the cost for laser systems continues to drop. The laser system may also have application in cutting cold steel which is difficult with today's conventional technology. For further information, contact Bob Schmitt at CMP, 412/268-6442.

Literature/Data Sources

LeCroy Corporation has published a 416 page illustrated *research instrumentation catalog* describing their extensive line of electronic instruments. The catalog contains a complete summary of the company's Research Systems Division's product line, including technical data sheets and specifications, application

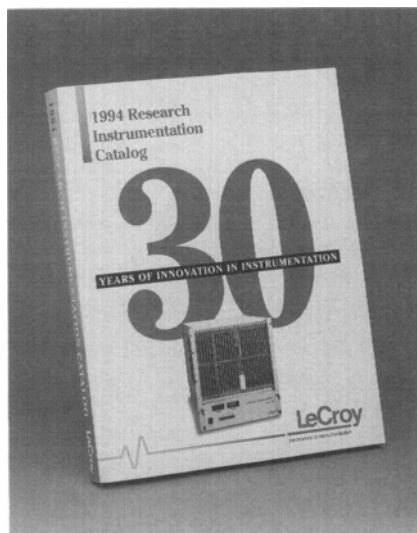
notes, examples of use and ordering information. The introductory tutorial, complete with glossary, provides the scientist and engineer with a base for understanding and using modern research instrumentation. For further information, contact Jim Mc Vea at 914/578-6013.

Polymer Corporation offers a free brochure detailing the *engineered thermoplastic materials and applications for cup & container filling equipment manufacturers*. The guild helps simplify the difficult task of choosing the best material based on the application's design and environmental criteria and covers acetel and other materials. For a brochure call 800/729-0101.

A new application report (#23) from **General Magnaplate, Inc.** details how the use of a high-tech "synergistic" *surface enhancement treatment for metal parts* solved a series of problems affecting custom robotic systems used in manufacturing. Metal-to-metal contact of the moving parts generated friction, which in turn caused wear. Ambient humidity caused corrosion and abrasive attack from sub-

For the tenth straight year, U.S. copper mine production rose to a new high—3938 million pounds, according to "Annual Data 1994—Copper Supply and Consumption" published recently by the **Copper Development Association Inc.** Electrowon copper production was up 5% and smelter production increased 6.9%. Production of refined copper increased 5%, while the consumption of refined copper increased 9.7%. Domestic consumption of mill products totaled 6816 million pounds, up 3.4% from 1992. Exports of mill products continued to grow also, up 18.9% from last year, at 535.8 million pounds versus imports of 536.3 million pounds. Recycling of scrap resources, at 2,977 million pounds, reflected 44% of the total U.S. copper supply, identical to last year's level. For a copy of the report, contact the Copper Development Association Inc., 260 Madison Avenue, NY, NY 10016; tel: 212/251-7200; fax: 212/251-7234.

stances in the products being manufactured caused "drag." Copies of Spotlight Report #23 are available from General Magnaplate Corp., 1331 Route 1, Linden, NJ 07036; tel: 908/862-6200; fax: 908/862-6110.



LeCroy Corporation

General Magnaplate

Spotlight Report
Robotic systems and equipment

Robotic systems' wear life extended by space-age surface enhancement coating
High-tech Magnaplate HMF coating prevents wear and corrosion on metal component parts in Automation Engineering's systems.

When Automation Engineering of Corvallis, Ore., custom-built robotic systems for many of the world's leading manufacturers, and again to be improved to corrosion and friction-free.

But this was not always so, since the need to meet demand of the most parts in any robotic system can usually be met by standard in-house maintenance and repair from the customer's own resources by their own staff.

An Automation Engineering plant in Corvallis, Ore., has found a solution which lowered the maintenance burden of the plant and factory in which their robotic systems are installed. Equipment maintenance, in particular, was not acceptable in the Corvallis high-temperature plant. Corrosion, leaks in steam, or getting which, in turn, leads to unplanned, unexpected failures and wear.

Automation Engineering had two robotic systems designed to handle a wide range of work. One was used to assemble and test a wide range of parts, and the other was used to assemble and test a wide range of parts. The first of the two robotic systems was designed to work in one of the most adverse types of coatings and the other was designed to work in a "dry" or "clean" environment.

The plant where the coatings are used is a major manufacturer of electronic components, to meet the demands of its operations back in the U.S.A.

The second robotic system consists of the same design and structure with a different metal in use and of the size, in the other end of the primary use profile. Light weight Corvallis' "dry" gripping device that combines thermoplastic gripping forces with high temperature. All these systems that are essential for efficient functioning in adverse environments. All system components are made of stainless steel, and the metal finish is a high-temperature, corrosion-resistant coating.

In these and other Automation Engineering robotic systems, the traditional approach to surface treatment had been to treat the parts with black oxide. The black coating, however, offered little protection against the corrosive effects of humidity and did little to enhance the life of the moving robotic parts.

Three Coatings in One
The company's own division, was to find what amounted to three coatings in one—a single, space-age, anti-corrosion, corrosion and moisture-resistant surface treatment that would extend the service life of their robotic components and reduce costly downtime. The ideal coating would have to be able to not only resist the elements, but also be able to be applied to the old dry film lubrication coatings on the robot's moving parts.

"What began as a search," says William O'Neil, AEA's owner and Chief Engineer, "for a coating that would meet these important criteria."

"It is not to be an ultra-thin film that would give our robot parts lifetime service that were superior to that of our current paint-based products. We needed something that would be better than that available with greater than that available with

General Magnaplate, Inc.

NACE International has released *Corrosion and Corrosivity Sensors*, a collection of technical papers presented at Corrosion/94. The book focuses on the use of sensors as a corrosion control method. Special emphases is placed on applications in the chemical, process, and transportation (automotive/aircraft) industries. Micro, electrochemical, robotic crawlers, fluorescent compounds, optical second harmonic generation, and electromagnetic are just a few of the types of sensors investigated. To order, contact the NACE Membership Services Department at 713/492-0535, ext. 81, or write to PO Box 218340, Houston, TX 77218-8340.

A new 16-page, 4-color catalog that describes in detail Cling Surface, Dykem, and Safetap products from **ITW Fluid Products Group** is now available. Features, benefits, and specifications are described for *lubricants, cleaners, metal marking products, and cutting and taping fluids*. To obtain a free copy of the catalog, contact ITW Fluid Products Group, 8501 Delport Ave., St. Louis, MO 63114; fax: 00/323-9536.

A new 472-page edition of *Powder Metallurgy Science*, by Randall M. German, has been published by the **Metal Powder Industries Federation**. Chapters cover the entire spectrum of powder metallurgy, including metal powder characterization and fabrication, microstructure control in powders, tailoring powders for shaping and consolidation, shaping and compacting, sintering, full density processing, finishing operations, compact characterization, and properties and applications. For further information, contact the Metal Powder Industries Federation, 105 College Road East, Princeton, NJ 08540-6692; tel: 609/452-7700; fax: 609/987-8523.

Varian offers VIA, a 15-page magazine containing articles about a *variety of applications for its chromatography and spectroscopy products*. A recent issue features articles about Varian's SpectrAA-800, StarLIMS, and applications and techniques for a variety of other products.

In Business

The **European Powder Metallurgy Association** has announced its 1994 awards. The Award of Merit for the development of new materials or improved process technology has been awarded to **Hoganas**

For further information, contact Varian Analytical Instruments, Department VIS212, PO Box 9000, San Fernando, CA 01341-9981; tel: 800/944-1926.

Material Handling Industry recently published its *1994 Resource Catalog*, which lists nearly 140 titles relating to the material handling industry, its equipment and technologies, and its role in increasing productivity. The catalog covers educational materials, proceedings, audio-visual materials, specifications and standards, and computer software packages. To request a catalog, call the Literature Department at 704/522-8644 or contact Material Handling Industry, Literature Department, 8720 Red Oak Blvd., Suite 201, Charlotte, NC 28217-3992.

ASTM has published *STP 1206, Composite Materials: Testing and Design*, 11th Volume, ed. Dr. E. T. Camponeschi, Jr. A total of 22 peer-review papers cover materials testing and response (including compression test methods and shear property measurements), design and analysis, and interlaminar fracture and strength. To order, contact ASTM Customer Service, 1916 Race Street, Philadelphia, PA 19103; tel: 215/299-5585; fax: 215/977-9679.

The latest technical developments in the metallic magnesium industry are available in the *1994 World Magnesium Conference Proceedings*, published by the **International Magnesium Association**. Topics include magnesium matrix composites, applications, processing, and markets. For further information, contact the International Magnesium Association, 1303 Vincent Place, Suite One, McLean, VA 22101; tel: 703/442-8888; fax: 703/821-1824.

Micro-Coax has released the 1994 edition of its *Semi-Rigid Cable Products catalog*, which includes information about the complete family of semi-rigid cables, resonators, and delay lines. The 68-page catalog includes technical information and specifications about the semi-rigid prod-

AB of Sweden for a low alloy steel powder. The Award for Innovation in PM component production was presented to **Sintertech** of Grenoble, France for its new adjustable pulley assembly for diesel en-



Micro-Coax

ucts as well as application information. For a free copy, contact Micro-Coax, PO Box 993, Collegeville, PA 19426-0993; tel: 610/489-3700; fax: 610/489-1103.

Progressive Dies: Principles and Practices of Design and Construction is an SME publication that combines more than 30 years of progressive die information into a new 462-page design guide. Techniques and materials are emphasized that result in the greatest economies at the highest levels of precision, and how to use automated tools to the greatest extent possible. Topics include die material selection and properties, grinding, EDM and wire-cut EDM operations, lubricant selection, and die protection systems, among others. The **Society of Manufacturing Engineers** also has published *Fundamentals of Pressworking*, a 416-page book covering press types, maintenance, tooling, safety factors, and press history. Readers can cross reference by the type of press, die operation, diesetting, and clamping techniques. For further information, contact the SME Customer Service Department, One SME Drive, PO Box 930, Dearborn, MI 48121-0930; tel: 800/733-4763; fax: 313/271-2861.

gine injection pumps. The Premier Award for Innovations in Powder Metallurgy was won by **Soderfors Powder AB** of Sweden for the production of new types of unique PM steels with a decorative pattern. The

International Award for Innovation in Powder Metallurgy was won by **Zenith Sintered Products Inc.** of Wisconsin for the development of a new PM steel main bearing cap.

Effective Management Systems, Inc., a developer of manufacturing software, has opened a West Coast office to expand its U.S. distribution network.

Air Liquide America Corporation's La Porte, Texas specialty gas plant has recently been awarded ISO 9002 certification. The company is also restructuring its cylinder gas business by concentrating its cylinder gas resources in the Southern and Western parts of the country.

Hoechst Celanese Corporation has begun engineering design work on a new Hostalen GUR ultra-high molecular weight polyethylene manufacturing plant, to be located at the company's manufacturing facility in Bay City, Texas. The new plant, which is scheduled to become operational in 1998, will increase Hoechst Celanese's annual UHMW-PE production capacity to 60 million pounds per year.

Republic Engineered Steels, Inc. has recently dedicated its new Gary, Indiana plant, which will expand the company's cold-finished steel-making capabilities. The facility has introduced some progressive work methods that encourage a high degree of employee involvement in decision making, and link compensation incentives to productivity and quality.

EDAX International, a manufacturer of x-ray microanalysis equipment, has announced the opening of a new office and demonstration facility in Tilburg, The Netherlands. This operation will provide applications and sales support for EDAX customers in Europe, the Middle East, and Africa.

Air Liquide America Corporation has been named Supplier of the Year by **Thomas & Betts Corporation**, a manufacturer of structural components for the utility and telecommunications industries. A consortium of 16 U.S. industrial contractors has been established to work on a two-year \$32.9 million laser machining program awarded as part of the government's Technology Reinvestment Project.

The Precision Laser Machining program will be managed by the Department of Defense's Advanced Research Projects Agency and is led by **TRW Inc. Space & Electronics Group**. Other members of the consortium are: the **Boeing Company, Caterpillar Inc., Cummins Engine Company, Inc., Edison Welding Institute, Fibertek, Inc., General Electric, Hughes Aircraft Company, University of Illinois, Newport News Shipbuilding, Northrop Grumman Corporation, Penn State University, Process Equipment Company, SDL Inc., United Technologies Corp., and Utilase Systems, Inc.**

Ormet Corporation, a producer of aluminum, has acquired **Consolidated Aluminum Corporation (Conalco) from Aluisse-Lonza America, Inc.** This purchase will expand Ormet's product lines and increase the number of manufacturing sites from two to six.

Hobart Brothers Company and Eutectic+Castolin have entered an agreement in principle contemplating the purchase by Eutectic+Castolin of the assets of Hobart Tafa Technologies.

BHP Steel USA, Inc. has announced plans to build a new \$60 million hot-dip aluminum-zinc alloy coating line. The 150,000-ton/year line, scheduled to begin output in July 1995, will augment the firm's existing capacity for paint-coated steel and make BHP the only producer of 55% Al-Zn coated coil in the West.

Security Plastics Caribe, a custom injection molder located in Puerto Rico, recently celebrated their fifth anniversary in operation. The company is a subsidiary of Security Plastics, Miami Lakes, Florida.

Hydro Magnesium Metal has been established as a new organization in the Magnesium Division of Norsk Hydro. All activities related to production and marketing of virgin and recycled magnesium metal and related services will be organized within Hydro Magnesium Metal.

ChemTech Consultants, Inc. and **Mitsubishi Kasei Corporation** of Tokyo, Japan have signed a coke plant technology license agreement that permits ChemTech to market, engineer, and install MKC coke

plant modernization technology in existing U.S. coke plants.

Ordeg Co., Ltd. (Seoul/Onsan), a joint venture between Oriental Chemical Industries (OCI), Korea, and Degussa A.G., Germany, has started expansion of its automotive exhaust control catalyst plant in Onsan, which will raise its production capacity from 1.5 million pieces to 3 million pieces/year. Ordeg has been a main contributor to the localization of automotive catalyst production in Korea since 1987 on the basis of a license agreement with Degussa A.G.

The Products Division of **Cincinnati Milacron** has been selected as General Motors' Worldwide Supplier of the Year 1993. The award recognizes GM supplier companies worldwide who exceed specific performance standards for quality, service, and price.

Milwaukee Electric Tool Corp., a manufacturer of power tools, has become the first power tool manufacturer to achieve ISO certification at all five locations.

Pyroteck, Inc., a manufacturer of high temperature materials and products for the aluminum, foundry, steel, and glass industries, has achieved ISO 9002 certification for its Spokane plant. The Spokane plant is a major manufacturing location for the company, which has 32 sales locations worldwide.

Air Liquide America Corporation has been awarded a contract to install its Advanced Product Supply Approach nitrogen generating plant for Rhone Poulenc's Surfactants and Specialties facility in Spartanburg, South Carolina. Installed in July 1994, the system will produce 13,500 scfh of nitrogen with less than 5 ppm of oxygen.

SupraCote, a Western steel coil coater since 1969, has changed its name and corporate identity to BHP Coated Steel Corp. The company has been a wholly owned subsidiary of BHP, Australia for three years.

The manufacturing systems department of **Warner-Lambert's Parke-Davis facility** in Holland has received the Creative Ex-

In the past six year the U.S. pipe industry has endured difficult recessionary pressures. Sales of most pipe materials either declined or experienced very weak growth. Several factors, such as overcapacity, increasing competition, and lower raw material costs, helped to precipitate declining demand for pipe between 1987 and 1993. However, with improving economic trends, prices of most pipe materials are beginning to stabilize and shipments are starting to rise, according to a study by **Business Communications Company, Inc.**, "The Competitive Pipe Industry." Pipe shipments were valued at \$16.1 billion in 1993, which is expected to reach \$18.5 billion in 1998, reflecting 3% average annual growth. With the exception of clay, all pipe materials are projected to increase in value in the next five years. Iron and steel pipe represent the largest segment of the U.S. pipe industry. In 1993, iron and steel pipe accounted for almost 49% of the total pipe market, though this is expected to decline to 45% by 1998. Thermoplastics represents 22% of the market and is gaining market share, expecting to have an annual growth rate of 4.6%. Copper pipe and aluminum pipe will grow at an annual rate of 4.3% and 9.3%, respectively.

cellence Award for its warehousing and material requisitioning program from Fourth Shift Corporation, a Minneapolis software manufacturer. Parke-Davis' entry consisted of an internal warehouse requisitioning system that allows for on-line raw material requests, eliminating the previous system of manual invoice requests.

The Metal Roofing Systems Association has initiated cooperative efforts with **Factory Mutual Research Corporation**. MRSA is currently reviewing the new FM Draft Approval Standard 4471-Class 1

Kudos

John L. Medina has been appointed the company's executive contact to the **Chemical Manufacturers Association**. Medina, executive vice president of Degussa Corporation's Pigment Group, will take over management of the Responsible Care initiative and its code of management practices.

The **Forging Industry Association** has elected new directors and officers. The directors are: Robert DeLay, Vice President Marketing, Alcoa Forged Products; **Eduardo T. Garza**, President and CEO, FRISA; **Joseph Cipriani**, President, Keystone Forging Co.; and **Sharon Sarton**, Vice President Marketing, Scot Forge Co. Officers are: **Robert M. Swope**, Executive Vice President, Advanced Technology, Masco Tech Forming Technologies as President; **Dennis H. Withers**, President, Trinity Forge, Inc. as Vice President; and **Dr. Kevin J. Handerman**, President, Ellwood City Forge Corp. and **Richard J. Tribble**, President & CEO, Anderson Shu-

Metal Panel Roofs and will provide its recommendations to FM.

Howmet Cercast (Canada) Inc. and **Brush Wellman Inc.** have established a strategic partnering agreement to produce and market investment-cast aluminum beryllium components. Under the terms of the agreement, Howmet's plant in Montreal, Quebec and Brush Wellman's Elmore plant will cooperatively develop aluminum beryllium investment casting technology.

maker Co. as Executive Committee members.

Reid Cooper, associate professor of materials science and engineering, and **Mark Arvedson**, TA of the University of Wisconsin-Madison's College of Engineering have been honored with Outstanding Teaching Awards from the Polygon Engineering Council.

Charles W. Finkl, CEO, A. Finkl & Sons Co., has been elected president of the **Forging Industry Educational and Research Foundation**. Other officers elected are: **Sanjay N. Shah**, vice president of operations, Wyman-Gordon Co., as vice president; **Paul Lavins**, president and chief operations officer, American Induction Heating Corp., as treasurer.

Charles E. Crew has been named a vice president of **General Electric Co.**, with responsibility for all field commercial op-

The 1995 DuPont Plunkett Awards for Innovation with Teflon has been expanded in the U.S. to award winners in three specific categories—electrical/electronic, chemical processing, and all other uses. The award recognizes outstanding innovation, development, and commercialization of new applications for fluoropolymer technology using DuPont Teflon and Tefzel fluoropolymer resins.

Selective Electronic, Inc. (Selcom) has received orders for ten additional Laser-Pour Automatic Pouring Control Systems from foundries in the U.S., UK, and Japan. This raises the number to 80 LaserPour systems that are in operation or in the process of being installed worldwide.

Riegl U.S.A. has appointed four manufacturers representatives to market its line of time-of-flight laser measurement systems to the steel, foundry, aluminum, and metal-working industries. They are: PEI Mid-south (LA), PEI Midwest (IL), Itec Inc. (NC), and Jasper Engineering and Equipment (MN).

erations of GE Plastics Americas. Previously he was general manager of field operations.

Davy International has announced the appointment of **Charles W. Long** to the position of Manager of Metals Technology for their Pittsburgh Operations. Long will be responsible for the coordination and implementation of new and existing technologies for the melting and refining of metals.



Charles W. Long

Air Liquide America Corp. has appointed **Steve Wayman** as technical manager for the company's North American Glass Group. Wayman will oversee all technical aspects related to the development and implementation of Air Liquide's technology for the glass industry, including oxy-fuel

burners, combustion control equipment, and mold lubrication technology.

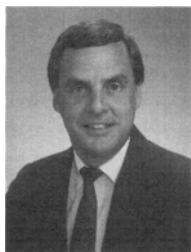
Sir Geoffrey Allen has been installed as President of the **Institute of Materials**, London, England. Sir Geoffrey is currently Executive Adviser to Kobe Steel Limited.

Cambridge Industries, Inc., a plastics supplier, has appointed **Douglas Mason** to vice president, marketing and strategic planning. Mason was most recently vice president, program management at the Budd Company.

The Dexter Corporation, a manufacturer of specialty materials, has named **John D. Thompson** as vice president, corporate services. Thompson will play a key role in keeping Dexter's strategy to focus on major markets that provide global growth opportunities. Also appointed is T. Daniel Clark as senior division president of the Dexter Packaging Products Division.

Frank J. Petro has been named president of **Inco Alloys International Inc.**, a producer of superalloys. He was previously head of Crucible Materials Corp.'s Specialty Metals division.

Ray W. Shook has been promoted to vice president of sales and marketing for **Hobart Welding Products**. Previously Shook was vice president of sales and marketing at McKay Welding Products.

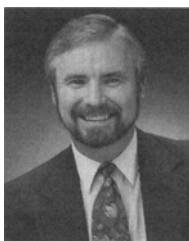


Ray Shook

Briawn H. Roe, chairman, **General Electric Aircraft Engines**, has received the American Society of Mechanical Engineers' R. Tom Sawyer Award. The award is given to an individual who has made important contributions toward the advancement of the gas turbine industry, as well as the ASME International Gas Turbine Institute over a substantial period of time.

Earl E. Walker, president of **Carr Lane Manufacturing Company**, was recently elected president of the SME Education

Foundation. Walker is a past SME International Director and an SME Fellow.



Kenneth L. Stenton

Kenneth L. Stenton has been named president of **John Chatillon & Sons**, a manufacturer of digital and analog force gauges, and related equipment. Stenton was most recently Director of Corporate Business Development with GenRad, Inc.

R. Gary Wilson has been named director of communications for the chemicals business of **PPG Industries**. He will be responsible for internal and external communication, public relations, and advertising.

Jack R. Lambert has joined **Howmet Corporation** as Vice President, Human Resources. His responsibilities include employee and labor relations, recruitment, training, management development, and compensation and benefit programs.



Jack R. Lambert



E. Martin Lauginiger

LFE Industrial Systems Corporation, a manufacturer of control systems for continuous web processes, has promoted **E. Martin Lauginiger** to the position of Regional Manager for the North Central region. This region includes Ohio, Indiana, Lower Michigan, Kentucky, West Virginia, Western Pennsylvania, and the Canadian province of Ontario.

Marty Lieberman has been appointed national sales manager for **Phibro-Tech, Inc.**, a chemicals/recycling services company. He will have responsibility for sales of all of the company's etchants, chemicals, and recycling services throughout the U.S.

The Coated Abrasives Manufacturers' Institute, Inc. has reelected the following officers: **David E. Williams**, Norton Company as President; **Gunther Degen**, Hermes Abrasives, Ltd. as First/second vice president; and **Karl Stafflinger**, Virginia Abrasives Corporation as Secretary/Treasurer.

Paragon Industries, Inc., a manufacturer of electric ceramic kilns, has hired **Robert L. Gieselman** as Director of Operations. He will help design or modify furnaces to fit specific needs of customers.



Robert L. Gieselman

Steven R. Manwaring and **David C. Wisler** of **General Electric Aircraft Engines** have received the Gas Turbine Award from the American Society of Mechanical Engineers. The award recognizes outstanding contributions to the literature of combustion gas turbines thermally combined with nuclear or steam power plants.

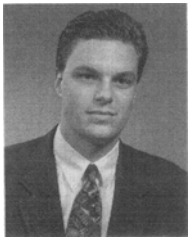
Patrick T. Kenney has been appointed to the new position of vice president of operations at **WCI Steel, Inc.** Kenney will manage WCI's primer and finishing operations, as well as the maintenance and services departments.

Richard A. Lofland has been selected as a Fellow of the Society of Manufacturing Engineers. He was honored for his many years of outstanding contributions to manufacturing advanced composites. Lofland is senior R&E technical leader, **McDonnell Douglas Helicopter Systems**.



Patrick T. Kenney

Dr. Roderick H. Martin has been appointed to head the advanced composites materials work at **Materials Engineering Research Laboratory, Ltd., England**. He previously worked with NASA and U.S. Army research programs on composites.



Michael A. Schuppert

Michael A. Schuppert has been appointed **Cadillac Plastic's** National Manager for Lexan film and sheet products. Schuppert will direct the marketing and sales programs for General Electric film and sheet products,

spearheading the efforts of Cadillac's Lexan specialists across the country and interfacing with GE's product managers.

Rick Vargo, former vice president and plant manager of the **Varbros Corporation**, has been named president of the company. Varbros manufactures high production stampings.

Brendan K. McCormick, president and chief operating officer of **Tompson Steel Company, Inc.**, has been elected president of the Association of Cold Rolled Strip Steel Producers. Other officers elected are: **Harold Dell**, vice president/general manager of Worthington Steel as Vice President; **Paul Eagle**, president of Greer Steel, as Treasurer; and **Tom Schaumberg** of Adducci, Mastriani, Schaumberg & Schill, as Secretary.

Janel Marie Koca, has joined the **GE Research and Development Center** as materials engineer on the Edison Engineering Program. Previously she was a co-op engineer with Allison Gas Turbine.

Functional additives are an essential and often expensive part of many polymer formulations, used both to ensure the efficient processing of materials and to enhance the properties of the finished product in some way. Such additives act as protection against light, heat, and other degradants, or act as colorants and fillers. **Rapra's Business Analysis and Consultancy Group** has recently published a business report that reviews the trends within this area. The report covers materials, processing, end-use sectors, technology, and consumption. For further information, contact Dr. P.W. Dufton, Rapra Technology Ltd., Shawbury, Shrewsbury, Shropshire, UK, SY4 4NR; tel: 44/0939250383; fax: 44/0949251118.

Siu-Wai Chan, associate professor of Materials Science at **Columbia University**, has won a National Science Foundation Presidential Faculty Fellowship for her work in thin film research and studies of electrical transport in oxide materials. The NSF Fellowship carries a \$500,000 stipend over five years.



Siu-Wai Chan

International Specialty Products, manufacturers of GAF chemicals, has appointed **Vincent R. Gurzo** as vice president and worldwide business director, Industrial Markets and Commercial Development. Gurzo will direct the worldwide business and financial operations of ISP's industrial products.

Liquid Carbonic has promoted **Otavio Sinto** to President, U.S. Industrial Gases. He will be responsible for all of the firm's operations in carbon dioxide, bulk atmospheric and cylinder gases.

Jim Meeder, Senior Technical Sales Representative and 1994 Salesman of the Year for the Ciba Polymers Division's Matrix Resins business, has been assigned to the **Ciba-Geigy Limited Matrix Sales** group in Switzerland.



Dr. Harry W. Antes

Dr. Harry W. Antes, vice president, research and development for **SPS Technologies** was named Delaware Valley Materials Man of the Year by the Philadelphia Liberty Bell Chapter

of ASM International. The award, the chapter's highest honor, recognizes outstanding achievements in metallurgy/materials science.

Keith Carruthers, President of Indalex, a division of **Caradon Limited**, has been named Chairman for ET'96, the 1966 International Aluminum Extrusion Technology Conference and Exposition. He will head the committee responsible for planning and conducting the quadrennial educational event.