

new products

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Lawrence G. Rubin

Focus on vacuum and cryogenics

Ion pumps

Kurt J. Lesker Co has announced the KJLC LION series of ion pumps. Eighteen standard models cover a pumping range of 3 L/s through 800 L/s (all speeds are for nitrogen gas) and are available with standard diode and noble diode elements. The noble 30 option combines the low-cost benefits of a diode pumping element with the noble gas capabilities of the noble diode. The small footprint pumps can be mounted in any orientation, without additional support; they come in five ranges, from 3 L/s to 40 L/s. The eight low-profile models, with a pump height of just under 30 cm for a single port pump, and the five tall-profile models cover a 100–800 L/s range. Titanium-sublimation pumps can be mounted inside most of the LION series. The company offers three pump controllers, the largest of which can control up to four pumps simultaneously. Kurt J. Lesker Company, P.O. Box 10, 1925 Route 51, Clairton, PA 15025-2700, <http://www.lesker.com>

See www.pt.ims.ca/9470-131

Helium leak detector

Vacuum Instrument Corp has introduced the MS-60 series of portable, dual-magnetic-sector mass spectrometer leak detectors to test the integrity of systems, containers, and parts by using helium as a tracer gas. Offering simple, one-button startup and three modes of vacuum operation—gross, rough, and fine—the leak detector includes a 7-cfm rotary vane foreline/roughing pump for fast cycle times; an optional 10-cfm pump can be provided. The MS-60 features lanthanum yttria-coated iridium filaments that are longer lasting than

tungsten, three modes of auto-zero capability, internal and external calibration flexibility, digital input and output, and password security. The company claims that the MS-60's 5×10^{-12} atm-cc/s sensitivity is the highest available for portable leak detectors. Vacuum Instrument Corporation, 2099 Ninth Avenue, Ronkonkoma, NY 11779, <http://www.vacuuminst.com>

See www.pt.ims.ca/9470-132

Vacuum isolation valves

JV series isolation valves from Nor-Cal Products are available in right-angle and in-line bodies in aluminum or stainless steel with NW16, 25, 40, and 50 flanges. Some models are rated up to 10 million operating cycles, designed for the high-cycle requirements of semiconductor equipment manufacturers and for ultrahigh-vacuum roughing. The JV series offers a unique manual actuator for coarse throttling, which allows partial opening by specified and repeatable intervals. Also available are pneumatic operators with an optional



air solenoid kit and electromagnetic actuators for systems that do not have compressed air sources. Other options include position indicators and, for electromagnetic models, snap-on coils and a memory function on power interruption. Nor-Cal Products Inc, 1967 South Oregon Street, Yreka, CA 96097, <http://www.n-c.com>

See www.pt.ims.ca/9470-133

Cryogenic vials and accessories

Biohit's Vanguard Cryos offer a broad line of cryogenic vials and accessories. The vials are a comprehensive solution for safe and convenient storage of samples and specimens at various subzero temperatures. When used with Cryoshrink tubing, the vials can be submerged in liquid nitrogen. All tubes and caps are made from polypropylene, with volumes from 1 cc to 5 cc; the tubes

are available in round, conical, and self-standing styles, and the caps come with either internal or external threads and with silicone gaskets or liners. Colored caps for coding can be inserted into the internally threaded vials. Vanguard Cryos have volume marking and write-on areas. Biohit storage accessories include cardboard boxes and stainless steel storage racks that fit all models of upright and chest-type freezers and refrigerators. Biohit Inc, 3535 Route 66, Building 4, P.O. Box 308, Neptune, NJ 07754-0308, <http://www.biohit.com>

See www.pt.ims.ca/9470-134

Vacuum transducer

Finemech Inc is distributing Thyracont Vacuum Instruments' model VSH82MV vacuum transducer. It includes both a hot cathode sensor and a Pirani sensor to cover a range from 1×10^{-9} mbar to atmospheric pressure. The Pirani uses pulsed operation that extends its measuring range, thus allowing the hot cathode to operate at lower pressure so that the durability of the filament is increased. The hot cathode sensor is automatically switched on and off by pressure sensing in the Pirani filament. The VSH82MV accuracy varies from 30% of reading in the 1000–20 mbar range to better than 10% of reading from 20 to 0.001 mbar and 15% of reading below 0.001 mbar. Both of the devices' sensors are gas sensitive; the transducer is therefore calibrated based on the gas being measured. The VSH82MV also has analog and digital (RS-485) logarithmic outputs. Finemech Inc, 35 Kiowa Court, Portola Valley, CA 94028, <http://www.finemech.com>

See www.pt.ims.ca/9470-135

Temperature controller

Lake Shore Cryotronics has developed model 325, which allows users to accurately measure and control temperatures from 1.4 K to above 1500 K. The instrument is factory configured with two inputs chosen in the field for two diode sensors, two resistance temperature detectors, or one of each. Thermocouple inputs can be substituted for one or both of the sensors by request on order. Two independent PID (proportional-integral-derivative) control loops with maximum heater outputs of 25 W and 2 W can drive loads of either 50 or 25 ohms. When not being used for



temperature control, the loop 2 output can be applied as a manually controlled source of 0–10 V. Model 325 includes both IEEE-488 and serial RS-232 computer interfaces. Sensor curves can be entered and manipulated through either interface. *Lake Shore Cryotronics Inc.*, 575 McCorkle Boulevard, Westerville, OH 43082, <http://www.lakeshore.com>
See www.pt.ims.ca/9470-136

Small diaphragm pump

Pfeiffer Vacuum has announced the MVP 006, a diaphragm pump that offers a pumping speed of 6 L/min and a dry, oil-free vacuum. The new pump's compact dimensions and light weight make it well suited for integration into analytical systems—including mass spectrometers—and turbo pumping stations that are becoming ever smaller. Automatic speed regulation and optimized materials increase the service life of the diaphragms. When the diaphragm pump is operated as a backing pump for the company's TMH/U 071 and TPD 011 turbopumps, automated pump control assures reliable performance in a vacuum system. The low operating pressure of the diaphragm pump (less than 2 mbar) and the turbopump's high pressure tolerance provide an optimally balanced high-vacuum pumping station. *Pfeiffer Vacuum*, 24 Trafalgar Square, Nashua, NH 03063, <http://www.pfeiffer-vacuum.com>
See www.pt.ims.ca/9470-137

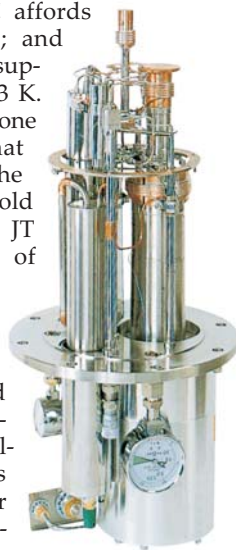
Vacuum Fourier transform IR spectrometer

The Vertex 80v vacuum FT-IR spectrometer from Bruker Optics is an evacuated optics bench that can eliminate atmospheric moisture absorption for ultimate sensitivity and stability. The new instrument's linear air bearing UltraScan interferometer, with the company's active alignment system, allows better than 0.07 cm⁻¹ optical resolution. Data acquisition is based on dual-channel, 24-bit A/D converters that are

integrated with the detector, to yield high signal-to-noise ratios. Outstanding versatility is assured by automated multidetector and multisource selection and software control of two external inputs and up to five exit beam ports. The Vertex 80v also offers a wide spectral range extension from the very far-IR (terahertz), through the mid- and near-IR, up to the visible and UV ranges. *Bruker Optics Inc.*, 19 Fortune Drive, Manning Park, Billerica, MA 01821-3991, <http://www.brukeroptics.com>
See www.pt.ims.ca/9470-138

High-capacity cryocoolers

Janis Research Co, the North American distributor for Sumitomo Heavy Industries, has introduced three new high-capacity, 4-K cryocooler systems, originally designed for radio astronomers who required high temperature stability and refrigeration power in the 4-K range. The cryocoolers use a two-stage, pneumatically driven Gifford-McMahon (GM) cold head with a Joule-Thomson (JT) third stage. Model CG304SC provides 1.2 W at 4.3 K; model CG308SC affords 3.5 W at 4.3 K; and model CG310SC supplies 5.0 W at 4.3 K. The devices use one compressor that handles both the two-stage GM cold head and the JT loop; two sizes of compressors are available. The cold heads are orientation-insensitive and compact in design. The cryocoolers are offered as bare systems or with cryostats designed by Janis to meet customers' requirements. *Janis Research Company Inc.*, 2 Jewel Drive, P.O. Box 696, Wilmington, MA 01887-0696, <http://www.janis.com>
See www.pt.ims.ca/9470-139



Probe for molecular beam monitor

Hidden Analytical's XBS probe integrates an electron bombardment ionizer with the company's 3F series

quadrupole system for simultaneous monitoring of multiple beam sources through a wide 70° cone. Monitoring can be done at any predetermined position within this core of acceptance. Series-specific analog signals are then used for beam intensity output to users' source-control modules. The XBS probe is fully enclosed in a stainless steel shroud to inhibit probe contamination and is water-cooled to protect it from radiant heat sources. The probe features dual-plane, custom-configured, beam-defining aperture plates, and a bellows-sealed linear motion drive that enables the probe to be fine adjusted for optimum positional alignment and fully retractable to prevent substrate shadowing. *Hidden Analytical Inc.*, 37699 Schoolcraft Road, Livonia, MI 48150, <http://www.hiddenanalytical.com>
See www.pt.ims.ca/9470-140

On the Web

Teledyne Hastings Instruments has updated its website that offers detailed product specifications of instruments for measurement and control of vacuum pressures and gas flows. New to the site are a Frequently Asked Questions section and outline engineering drawings for download. *Teledyne Hastings Instruments*, 804 Newcombe Avenue, Hampton, VA 23669, <http://www.teledyne-hi.com>
See www.pt.ims.ca/9470-141

New literature

ISI, a division of MDC Vacuum Products, has published a 275-page catalog that details an expanded line of ceramic-to-metal vacuum components. Featured are UHV-grade multipin, current, RF, coaxial, thermocouple, and liquid feedthroughs; optical viewports; and vacuum breaks and envelopes. *Insulator Seal*, 6460 Parkland Drive, Sarasota, FL 34243, <http://www.insulatorseal.com>
See www.pt.ims.ca/9470-142

A 2006 catalog from Fil-Tech Inc introduces the company's Longer Life Gold quartz crystals and has details on coating and vacuum supplies and custom substrate-holder design and fabrication services. Also included is cross-reference information on replacement parts for electron beam guns and ion source systems. *Fil-Tech Inc.*, 6 Pinckney Street, Boston, MA 02114, <http://www.filtech.com>
See www.pt.ims.ca/9470-143