

NEW PRODUCTS

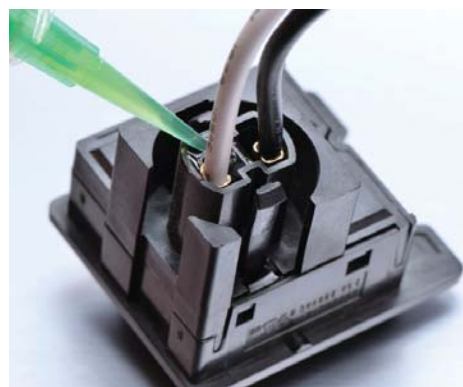
Focus on cryogenics, vacuum equipment, materials, and semiconductors

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of its description. Please send all new product submissions to ptpub@aip.org.

Andreas Mandelis

High-speed Roots pumps

Pfeiffer Vacuum has extended its HiLobe series by adding Roots pumps that can handle pumping speeds up to 13 600 m³/h. The pumps are suitable for a range of low and medium vacuum applications. Those include the rapid evacuation of large enclosures such as load-lock chambers and vacuum furnaces, leak detecting, electron-beam welding, and freeze-drying and coating. Compared with conventional Roots pumps, the new pumps have energy-efficient drives and optimized rotor geometries that reduce energy costs by more than 50% and shorten pump-down times by about 20%, according to the company. The pumps are hermetically sealed and have a maximum integral leak rate of 1×10^{-6} Pa m³/s. The elimination of dynamic seals means the pumps need maintenance only every four years. Intelligent interface technology ensures optimal process adjustment and condition monitoring. **Pfeiffer Vacuum Inc.**, 24 Trafalgar Sq, Nashua, NH 03063, www.pfeiffer-vacuum.com



Arc-resistant epoxy

Master Bond formulated its EP21AC two-part epoxy for applications that require arc resistance, which is a challenge for numerous electronic and electrical devices. The epoxy has a nonhalogenated filler and features the highest Performance Level Category of 0 under the UL746A High Amp Arc Ignition test. It is also flame retardant, as per the UL94HB standard for flammability testing. That combination of performance properties makes EP21AC suitable for encapsulating, potting, or coating in many demanding applications. The system resists thermomechanical stresses and is an excellent electrical insulator. It is serviceable over the temperature range of -60 °C to 90 °C, has a convenient 1:1 mix ratio by weight, and cures at room temperature, or more rapidly with heat. The compound bonds well to various substrates, including metals, ceramics, composites, and many plastics and rubbers. **Master Bond Inc.**, 154 Hobart St, Hackensack, NJ 07601-3922, www.masterbond.com



Laboratory vacuum pumps

KNF has unveiled a new series of its LABOPORT pumps—N 96, N 820 G, and N 840 G—that it says meet LABOPORT performance standards and feature a new design for ease of use and streamlined laboratory routine. To increase versatility, speed-controlled DC motors have been added.

The pumps offer a flow rate of 7–34 L/min and ultimate vacuum of 6 mbar absolute (5 torr), a high level of vapor and condensate compatibility, and integrated rotational speed control. To facilitate creating vacuum systems, they are compact and modular and have a separator and a condenser. That enables environmentally friendly recovery of solvents and a high degree of protection against aggressive chemicals. Also new are the SH 820 G, SR 820 G, SH 840 G, and SR 840 G systems, which comprise a chemically resistant diaphragm vacuum pump, base plate, separator flask on the suction side, and high-performance condenser on the pressure side. **KNF Neuberger Inc.**, 2 Black Forest Rd, Trenton, NJ 08691-1810, <https://knf.com>

Compact high-vacuum system

Leybold has completed its TURBOLAB series by launching the TURBOLAB Core, a small high-vacuum system for use in R&D laboratories and industry. The tabletop unit is designed for entry-level vacuum needs that require a clean, dry, stable high and ultrahigh vacuum. The ergonomic, cost-effective system comprises proven Leybold components, which include the oil- and maintenance-free Turbovac i turbomolecular pump, the DIVAC 1.4 dry diaphragm backing pump, and a user-friendly controller that also serves as a speed and pressure display. The equipment of the robust, low-noise system is geared to the ambient conditions of laboratories and research facilities: To prevent the transmission of vibrations, as when the TURBOLAB Core is placed close to a microscope, for example, the compact pumping station frame stands on rubber feet. **Leybold GmbH**, Bonner Str 498, 50968 Cologne, Germany, www.leybold.com





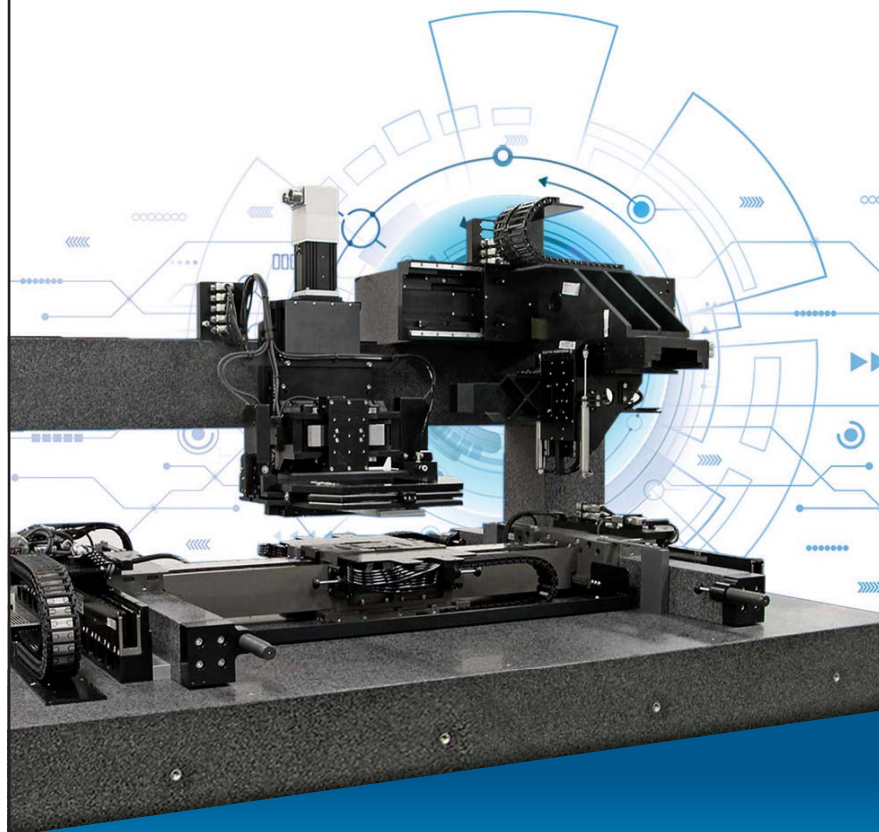
Vacuum transducer that supports predictive maintenance

According to Thyracont Vacuum Instruments, it is the first manufacturer of vacuum measurement technology to offer transducers that comply with the Open Platform Communications Unified Architecture, a data-transfer standard for industrial communication. OPC UA allows safe data transmission from machine to machine or machine to PC, independent of manufacturer, programming language, and operating system. All vacuum transducers of the company's Smartline product family with an RS485 interface will provide further parameters to support predictive maintenance, the proactive servicing of machines and appliances. To better plan service intervals, order spare parts, and optimize

system run times, users can check the degree of sensor wear or corrosion, the time of the last adjustment, and the operation hours. *Thyracont Vacuum Instruments GmbH, Max-Emanuel-Str 10, 94036 Passau, Germany, <https://thyracont-vacuum.com>*



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Compound-semiconductor characterization

Semilab now offers its MBM-2201 semiconductor metrology system for the RF gallium nitride device market. MBM-2201 can characterize the charge carrier mobility and density and the sheet resistance of compound semiconductors with high-resistivity substrates on the entire surface of samples up to 200 mm in size. It features a small footprint, an ISO Class 1 clean-room design, and a fully automated wafer-handling capability, and delivers higher performance compared with its predecessor in the form of wider sheet resistance and mobility ranges, improved stability, and high sampling frequency and throughput. The MBM-2201's noncontact, nondestructive measurement method allows sample wafers to be sold after measurements. *Semilab USA LLC, 12415 Telecom Dr, Tampa, FL 33637, <https://semilab.com>*



Pulse-tube cryocooler

To enable dry dilution refrigerators to achieve temperatures down to millikelvin levels, Cryomech designed its PT310 pulse-tube cryocooler to deliver its optimum heat-lift performance at 3 K: It offers 1 W at 3 K and 35 W at 35 K. The remote-motor version, the PT310-RM, offers 0.9 W at 3 K and 32 W at 35 K. The base temperature is 2.3 K, and the cool-down time to 3 K is 60 minutes. The new cryocooler has the same envelope as the company's PT425 model, which makes it easy to transition to the next generation of dilution refrigerators. The unit is run with the CPA1114 compressor and is available with an integrated or remote motor. According to the company, the PT310's performance enables users to advance their refrigeration technology, which is at the heart of quantum computing developments. **Cryomech Inc**, 6682 Moore Rd, Syracuse, NY 13211, www.cryomech.com

Vacuum process analyzers

Hidden Analytical has introduced its HPR-30 series quadrupole analyzers for fast-response, high-sensitivity analysis of gas and vapor species. Applications for the bolt-on vacuum process analyzers include leak detection, contamination monitoring, process trend analysis, and analysis of high-mass species and precursors used in atomic layer deposition and metal-organic chemical vapor deposition. The standard mass range is 200 amu; versions up to 1000 amu are available. Multiple sampling configurations suit a full range of process-pressure and vacuum-system-geometry requirements. Those include versions with single or multiple sampling inlets and unheated or heated models to allow sampling of volatile species. For pulsed deposition processes, 50 ns time-resolution measurements are offered. **Hidden Analytical Inc**, 37699 Schoolcraft Rd, Livonia, MI 48150, www.hiddenanalytical.com

PT



IT'S ALWAYS SAFER TO HAVE BACKUP

KNF LeakTight gas pumps offer ultra-low leak rates of 6×10^{-6} mbar l/s and include a safety back-up diaphragm to prevent leakage even in the event of failure. Optional O-rings and seals are available for added protection against air intrusion.

Let KNF back you up with a safer, more reliable solution.

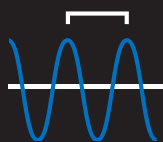


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KNF



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