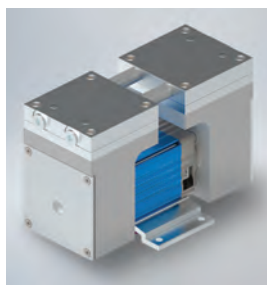


NEW PRODUCTS

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



Customizable diaphragm gas pump

The N 938 diaphragm gas pump from KNF delivers precise vacuum control for fuel-cell, laboratory and medical, measurement technology, and other applications. A key feature of the new pump is its process-compliant vacuum performance: Because of the in-house-developed brushless motors, parameters such as motor speed, acceleration, starting curve, and current limit can be defined according to user needs. With flow rates of 7–35 L/min with the single-head version and 11–53 L/min with the dual-head standard version, the N 938 series can achieve a final vacuum of up to 140 mbar

absolute. Its maximum operating pressure is 1 barg. The standard version features an aluminum pump head, an ethylene propylene diene monomer diaphragm, and fluorinated propylene monomer valves for reliable, efficient operation. Available pump-head materials include anodized aluminum, polyphenylene sulfide, and stainless steel. Depending on specific requirements, the pump's maximum media temperature can be increased up to 60 °C. If required, the pump can be configured for even lower vacuum levels. **KNF Neuberger Inc**, 2 Black Forest Rd, Trenton, NJ 08691-1810, <https://knf.com>

Epoxy for dam-and-fill encapsulation

Master Bond Supreme 3DM-85 is a no-mix, non-solvent-based, one-component epoxy formulated to serve as the damming compound in dam-and-fill encapsulation applications.

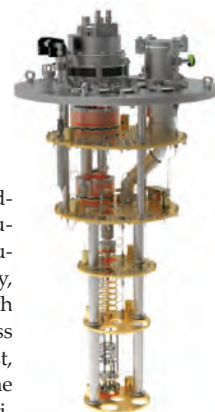


The thixotropic paste can also be used for bonding and sealing, especially where no flow is needed, since it cures in place and will not run or slump. Designed for heat-sensitive components that cannot withstand high curing temperatures, the compound requires a relatively low heat cure of 85 °C for two to three hours. It is usable over a temperature range of -73 °C to 177 °C. Supreme 3DM-85 is a toughened system that resists rigorous thermal cycling. A reliable electrical insulator with a thermal conductivity of 0.72–1.44 W/(m·K), it facilitates effective heat dissipation and prevents overheating, especially in densely packed electronic assemblies. Supreme 3DM-85 forms strong bonds with a wide range of substrates found in semiconductors and electronics, including metals, composites, ceramics, silicon, and plastics. **Master Bond Inc**, 154 Hobart St, Hackensack, NJ 07601-3922, www.masterbond.com

PT

Compact dilution refrigerator

The ProteoxS, the latest addition to Oxford Instruments NanoScience's dilution refrigerator family, cools quickly and can reach a base temperature of less than 10 mK. The smallest, lowest-cost system in the range, the ProteoxS facilitates low-temperature physics for university laboratories that have limited infrastructure or budgets. The system has extensive wiring capabilities and can integrate cold electronics and optical fibers. It is compatible with vector 6/1/1 T three-axis magnets, solenoid magnets of up to 12 T, and the company's bottom-loading mechanism, which reduces the sample cooldown time to eight hours. While the magnet is operating, the system can reach 30 K, which enables users to measure electron transport. The ProteoxS is suitable for general research, photonics, and sensing applications. It can also be used by those starting out in superconducting quantum computing who require only a small number of qubits or in spin-based quantum computing where a large plate size is not needed. **Oxford Instruments plc**, Tubney Woods, Abingdon OX13 5QX, UK, <https://nanoscience.oxinst.com>



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