



## Laser Mirrors

Laser Research Optics, a division of Meller Optics, provides a full line of carbon dioxide (CO<sub>2</sub>) mirrors and phase-retardation reflectors for low-power lasers used in industrial marking, etching, and soldering applications. The laser mirrors, designed for use with 25- to 200-W industrial lasers, are made from silicon or molybdenum, which is more durable in applications that require frequent cleaning. The average reflectance is >99.5 to 99.7% for the silicon mirrors—and 98% for the molybdenum mirrors—at 10.6 mm and a 45° angle of incidence. CO<sub>2</sub> laser mirrors made of either material are available in outer diameters of 0.5 to 1.5 in. The silicon mirrors can be enhanced with silver, copper, or dual-band coatings, and phase-retardation reflectors with < 1.5% total absorption are also available.

**Laser Research Optics**  
120 Corliss Street  
Providence, RI 02904  
Circle No. 180 on Reader Service Card

## Optical Gel

The Fiber Optic Center, a worldwide supplier of materials to high-tech companies, has available the low-index, optically clear optical gel LS-3238 made by Lightspan. The gel is a soft encapsulation material designed especially to protect sensitive phonics and fiber optics modules from mechanical and thermal shock, dust, and moisture. The gel has a refractive index of 1.38, which aids internal reflection in silica fiber, optical glass, and plastic substrates. The optically clear gel permits postcure inspections of delicate assemblies. Its ultralow gel modulus permits high levels of strain without an

excessive stress buildup in sensitive fiber or wire bond runs. LS-3238 cures in 24 h at room temperature without requiring UV exposure or a high-temperature bake, and its standard service temperature ranges from -40° to +200° C.

**Fiber Optic Center**  
23 Centre Street

New Bedford, MA 02740-6322  
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## Photoetched Parts

Photofabrication Engineering can photoetch intricate, burr-free electronic parts in production quantities from standard or exotic noncorrosive metals without inducing the stresses common to machined parts. The company photoetches all types of metals—from aluminum to zirconium and including pure titanium—to produce parts for many industries, including the medical, nuclear, automotive, microwave, and aerospace sectors. Examples include optical encoder disks, heat sinks, seam-weldable lids for microelectronics packages, and thermal-switch components. Photofabrication stocks more than 2,000 materials that range in thickness from 0.013 to 22.86 mm. Delivery typically takes three to four weeks from the receipt of an order.

**Photofabrication Engineering, Inc.**  
500 Fortune Boulevard  
Milford, MA 01757  
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## Reflecting Plastic

Gigahertz-Optik's Optically Diffuse Material—a white optical-grade plastic that the company calls OP.DI.MA.—has many uses in lighting design, laser, and reflection-transmission applications. The material has a diffuse reflectance of >98% from 400 to 1,600 nm and >95% from 250 to 2,000 nm. OP.DI.MA. provides a uniform reflectance across this spectral range, over a large area, and at temperatures up to 200° C as standard and 300° C during short exposures. Other material features include long-term ultraviolet stability, high maxi-



mum permissible radiation flux densities, and the ability to be cleaned and resurfaced. Applications include white reflectance standards, reflectors, projection screens, laser cavities, and integrating-sphere coatings. OP.DI.MA. is available as sheets, blocks, squares, or round plates in several thicknesses.

**Gigahertz-Optik, Inc.**  
5 Perry Way  
Newburyport, MA 01950-4009  
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## Optics Wipes

Opto-Alignment has added a new configuration to its line of bulk-packed precision-lens cleaning wipes. Increasingly, many companies in the photonics industry must deal with large numbers of small optical components. The new 2 × 4-in. Opto-Wipes are soft, lint-free, and aimed particularly at fabricators, coaters, and assemblers who need to clean or package small optical parts. Opto-Alignment says



the new configuration provides increased convenience and reduces waste. Opto-Wipes are specifically designed for precision optics and can be used on glass, plastics, coatings, and crystals. They are available in several standard configurations up to 12 × 12 in. The wipes retain and disperse solvents at an optimal rate, trap contaminants, leave no residue, and do not damage optical elements.

**Opto-Alignment Technology, Inc.**  
95 Mt. Read Boulevard  
Rochester, NY 14611  
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## Coated Mirrors

Optical Surfaces produces extremely durable coated mirrors up to 600 mm in diameter for use with high-power femtosecond lasers in applications that include plasma physics, laser manufacturing, and telecommunications. The company uses



proprietary manufacturing techniques and the latest dielectric technology to produce off-axis paraboloids, which optimize the performance of rapid-pulsed lasers, from materials such as glass, ceramic, and silica. The mirrors provide minimum pulse distortion

and the maximum usable bandwidth. When used with high-power femtosecond lasers operating at 750 to 850 nm, these Optical Surfaces mirrors accommodate power densities up to 100 mJ/cm<sup>2</sup> for continuous 50-fs pulses.

**Optical Surfaces Ltd.**  
Godstone Road, Kenley  
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## Transit Plate

Pinpoint Laser has introduced a new azimuth transit plate as part of its Laser Microgauge measuring system for use in alignment applications in manufacturing and engineering. The new plate enables high accuracy in measuring straightness, flatness, parallelism, and leveling. When the Laser Microgauge is mounted atop the azimuth transit plate, the laser's reference beam can be leveled, turned, and positioned to make measurements with a precision of 0.001 in. over distances up to 50 ft. This accuracy makes the enhanced Laser Microgauge ideal for applications such as shipbuilding, machinery installation, aligning rollers and guides, and adjusting machine tools. Precision adjustment screws control the azimuth, level, and swing position of the plate, which can be mounted on a tripod or bolted to a framework or piece of machinery.

**Pinpoint Laser Systems**  
3 Graf Road  
Newburyport, MA 01950  
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## New Literature

### Inorganics Catalogue

Alfa Aesar has published its new *High Purity Inorganics Catalogue*, which lists hundreds of high-purity materials used in research and production. The 48-page publication includes listings of base-metal compounds, rare-earth compounds, and ultradry materials for air- and moisture-sensitive applications. Alfa Aesar also carries Puratronic high-purity base-metal salts, which are used in the pharmaceutical and electronics industries as the basic building

blocks of many manufacturing processes. Each Puratronic compound has a minimum purity of 99.99% and comes with a certificate of analysis. The catalogue also includes the REacton line of high-purity rare-earth compounds and Alfa Aesar's comprehensive line of ultradry materials.

**Alfa Aesar**  
30 Bond Street  
Ward Hill, MA 01835-8099  
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### Seal Assemblies

Bomco has released a new catalogue of quartz-to-metal seal assemblies intended for designers and manufacturers of lasers, sight windows, high-wattage lamps, electro-optical equipment, and semiconductor products. It also explains how designers can use Bomco's proprietary tubular quartz-to-metal seal technology to create smaller higher-performance electro-optical components. For those working with molecular-beam epitaxy, the company provides a standard line of low-strain, fused-quartz, ultra-high-vacuum (UHV) windows in flange sizes from 1.33 to 4.5 in., protective shields for UHV windows, and a new reentrant UHV window. Designers will also find standard flange-mounted moly-quartz seals in flange diameters of 1.33, 2.75, and 3.375 in.



**Bomco, Inc.**  
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The New Products section is based on information supplied by the manufacturers. *The Industrial Physicist* can assume no responsibility for its accuracy. To facilitate inquiries, a Reader Service Card is attached between pages 30 and 31.