

RESOURCES

A summary of new products and services
for materials research...

Fluorosilicone Sponge Gaskets:

Stockwell Rubber Company offers fluorosilicone sponge rubber gaskets and pads for sealing out dust and moisture in applications where harsh fluids such as coolants, fuels, and oil may be present. The gaskets and pads are available in thicknesses of 0.81 mm, 1.57 mm, and 3.18 mm. Fluorosilicone also resists sunlight aging and maintains its properties over temperatures ranging from -80 to +400°F (approx. -61.6 to +202.4°C).

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E-Beam Fluidized Bed Process: The E-Beam fluidized bed process from Electron Processing Systems uses electrons as a physical sterilizing agent rather than chemicals or toxins and features a system that can treat any type of feed, grain, or powder at room temperature. Supporting the product in an air stream to ensure uniform surface treatment, the process controls the flow and electron beam intensity to disinfect and sterilize without adverse effects. The system operates at 300–2000 m/min, and a 10 kW in-line system can provide product throughput of 1 ton/h nominal at 10 kGy (1 Mrad).

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Linear Motion Devices: Del-Tron's ESD slides meet low electrostatic discharge requirements common in the semiconductor and electronics industries. The slides are coated with electroless nickel, an alloy of nickel and phosphorus produced by autocatalytic chemical reduction with hypophosphite. The plating provides a conductive path that allows static charges to dissipate, whereas standard anodized coating on conventional slides acts as an insulator that holds a static charge.

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Microwave System: The CleanSTAR™ system from CEM Corporation was developed for sample preparation of ultrapure materials for ultratrace contamination detection that require matrix reduction before analysis. The system functions similar to a miniature clean room, and each vessel has its own vacuum line and HEPA-filtered or pure nitrogen air inlet. Concentration time is reduced from hours to minutes. "Auto-detect" software determines dryness and prevents burning of the sample. The system is suitable for high-purity specialty chemicals, microelectronics, and semiconductor materials.

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High Density RF Plasma Source:

Delta Glow™ plasma sources from Manitou Systems generate dense gas plasma for thin film deposition, etching, and material surface modification applications. The plasma sources reduce oxygen contamination that conventional diagnostic techniques fail to detect and remove. When used to clean a vacuum system, the bombardment of system surfaces with electrons and ions stimulates desorption of water bonded to system surfaces, resulting in a cleaner system with less film contamination during subsequent processing.

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Multiwafer Production MBE System:

The GEN2000 from EPI MBE Products Group is a multiwafer production MBE system that can mass-produce epitaxial wafers such as GaAs. The GEN2000 uses a cluster tool wafer handling system, and the design reduces per-wafer cost by more than 40% compared to other currently available systems.

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Scratch-Resistant Coatings:

DF93™ abrasion-resistant coatings from Dunmore provide a durable and environmentally friendly finish to metal, plastic, wood, or graphic surfaces. The coatings are available in high to low clarity levels and in a range of colors. Coating thickness is 1–2 μm, and flexibility is 10% elongation.

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Dry Screw Pumps:

Varian's VS Series™ dry screw primary pumps are designed for semiconductor processing applications such as primary pumping for turbo- and ion-pumped systems, cryogenic pump roughing, and other uses demanding a hydrocarbon-free clean environment. The screw pumps withstand high particulate levels and operate at high internal temperature to prevent condensation of process chemistry. An optional DuraWash™ feature allows *in situ* cleaning of deposited compounds. The pumps are available in speeds of 18 to 270 cfm.

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Machinable Aerospace Alloy:

Carpenter Project 7000® 15Cr-5Ni stainless steel provides superior machinability while meeting requirements of AMS 5659. Available as a "drop-in" replacement for conventional 15Cr-5Ni stainless steel, the alloy possesses high strength and hardness, with machinability improvements of 3-1/2 to 10 times. Corrosion resistance approaches that of Type 304 stainless steel. The alloy also displays excellent resistance to oxidation up to 593°C.

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Laser Tube for F₂ Laser Operation at 157 nm:

Lambda Physik's DuraTube® is designed for F₂ laser operation at 157 nm. The tube is optimized in gas circulation geometry and components, resulting in increased gas lifetime for F₂ operation and reliability without cryogenic gas purifying. The tube is assembled with resonator mirror fittings to facilitate mirror exchange in combination with an isolated beam path. Lambda Physik's F₂ lasers are suitable for optics testing and DUV lithography at 157 nm. The DuraTube performance results in longer uptime for the laser system.

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Tabletop Digital Radiography System:

The Model DX-50™ from Faxitron® provides direct digital, cabinet x-ray imaging when used with a desktop computer and high-resolution monitor. Typical image acquisition time is 6 s, and images are displayed with electronic image processing combined with various computer functions for selective image enhancement. Images can be magnified 5 to 15 times, and resolution is 10 lp/mm. Active image area is 50 mm × 50 mm standard, or an optional 50 mm × 100 mm.

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