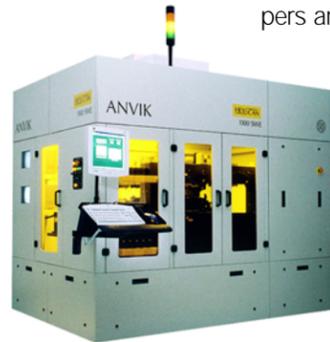


Electronics manufacturers have been frustrated by the limitations of today's lithography and patterning equipment. Standard projection lithography and printing systems can produce small features but have limitations when it comes to large-area substrates. Stepping systems can accommodate larger substrates but have restricted throughput and lower yield. Here is a product that ends the frustrations of electronics manufacturers.

Hex-Scan™

How It Helps: Hex-Scan lithography systems combine large-area imaging capability with high resolution and high throughput to enable high-volume, cost-effective production of a wide range of microelectronic and optoelectronic products. This combination eliminates the limitations of other lithography tools, including contact and proximity tools, conventional projection systems, steppers and scanners, and direct-write machines. Further, these systems are highly modular, allowing for equipment upgrades and user-specified configurations.



How It Works: Hex-Scan lithography systems use patented hexagonal seamless scanning technology to enable operators to deliver the desired resolution over very large substrate areas. The substrate and mask are mounted on a single planar stage that scans in two directions. An excimer laser illuminates the mask from below in a hexagon-shaped region, which is imaged onto the substrate by an all-refractive projection lens. A reversing unit ensures that the image has the same orientation as the object. The single planar stage causes the mask and substrate to move together in a scan-and-repeat serpentine fashion until the entire substrate is exposed. The complementary overlap between adjacent scanning areas produces seamless exposure.



How Much It Will Cost: These systems range from \$600,000 to \$1.5 million depending on the model and its levels of customization and automation. This cost is far less than the \$5 to \$7 million for traditional stepper machines.

When It Will Be Ready: Lithography systems are now available for printed circuit boards, high-density interconnects, optoelectronics, microelectromechanical systems, and displays (both rigid and flexible). Swedish companies Sheldahl and Acreo AB, as well as a Fortune 100 company in the United States, have purchased these lithography systems for volume manufacturing of microelectronic products.

Who Is Working On It: Anvik Corporation developed this product. The company designs, develops, and manufactures advanced optical systems and equipment for microelectronics, optoelectronics, microsystems, and biotechnology applications. It occupies a 12,000-square-foot manufacturing and technical facility, with well-equipped laboratories for optics, electronics, and microelectronic processing, and has powerful software design tools for optical engineering. Founded in 1995, Anvik currently employs 10 people. For more information, contact Marc Zemel of Anvik Corporation at (914) 345-2442 or mzemel@anvik.com. The company Web site is www.anvik.com.



MDA Origins
Anvik's lithography system could help shrink the size and improve the performance of electronic circuitry used in missile defense systems. For this reason, BMDO funded the company's SBIR Phase I and II research, which ultimately resulted in a submicron-resolution, large-area, high-throughput lithography system. Additional research funding was obtained from DARPA, the U.S. Army, the U.S. Air Force, and the National Science Foundation.

