

## Laser Projection Imaging

## High-Throughput, High-Resolution, Projection Imaging System for Printed Circuit Boards

The Anvik HexScan™ 2100 SPE laser projection imaging (LPI) system represents a revolutionary advance in large-format lithography systems. It offers the unique combination of high-resolution *projection* imaging, large-area substrate handling, and high-precision alignment, making it the ideal exposure tool for cost-effective, volume manufacturing of high-performance printed circuit boards. With its excimer laser illumination source emitting 40-50 watts of UV radiation, this high-throughput system serves both as a primary imaging tool for conventional dry-film or liquid resists, and as an efficient exposure system for solder masks and other layers requiring high doses.

### Large-Format Substrate Handling

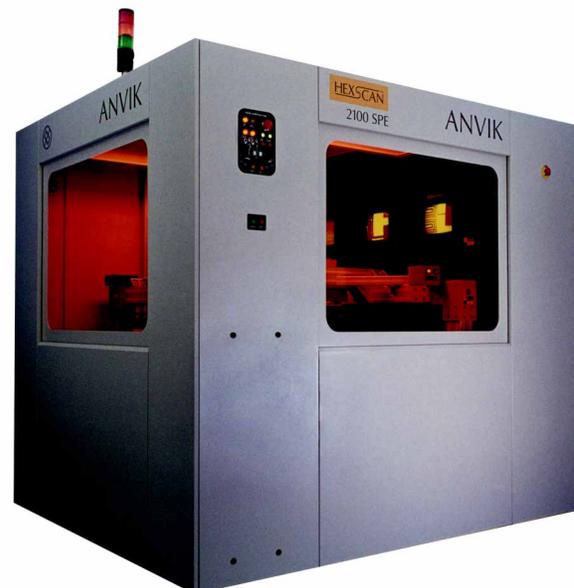
- Designed for projection patterning of boards of sizes up to 610 x 915 mm (24 x 36 inches)
- Capable of handling panels of a wide range of thicknesses, with no mask-to-panel contact
- Ideal for imaging rigid and flex substrates, and both inner and outer layers

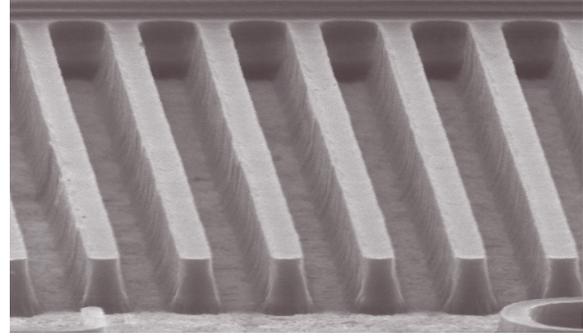
### High Resolution, Fine Alignment

- Telecentric projection lens provides resolution of 10  $\mu\text{m}$  (0.4 mil) features (lines, spaces, holes)
- Patented seamless scanning technology delivers lens resolution over entire panel
- Fully automatic,  $\pm 2.5 \mu\text{m}$  ( $\pm 0.1$  mil) alignment (layer-to-layer, front-to-back, mask-to-board)

### Very High Exposure Throughput

- Exposure throughput of 120 panels/hr (18 x 24 inch panels) with conventional resists, made possible by:
  - Seamless scanning with large-area hexagonal illumination beam
  - High-power excimer laser illumination system
  - Single-planar, high-speed, high-precision x-y scanning stage





Exposures made with the Anvik HexScan™ 2100 SPE laser projection imaging system in conventional photoresists. The left figure shows 2 mil (50 μm) lines and spaces imaged in 1.2 mil (30 μm) thick MacDermid MI 112 dry-film negative resist. The right figure shows 0.4 mil (10 μm) lines and spaces imaged in 0.5 mil (13 μm) thick AZ-Clariant 9260 liquid positive resist.

### Versatility

- **Delivers very high throughput for lithography in a wide range of photoresist materials**
- **Capable of patterning with a variety of common mask materials, including mylar, glass, and fused silica**
- **Capable of batch via-generation in polymeric dielectrics**

### Modularity and Upgradability

- **Modular design enables user to define ideal system configuration**
- **Available with independent x-y scaling capability (up to 5000 ppm) to compensate for panel dimensional changes**
- **Available with Variable Area Substrate Tiling (VAST™) capability to populate panel with modules of different sizes**

## HexScan™ 2100 SPE Specifications

Imaging Technique	Seamless scanning projection
Resolution	10 microns (0.4 mil)
Projection System	1:1 magnification refractive lens
Depth of Focus	560 microns (22 mils)
Substrate Size	Up to 610 x 915 mm (24 x 36 inches), with or without tiling
Illumination Source	XeF excimer laser (other sources optional)
Exposure Wavelength	351 nm (other wavelengths optional)
Overlay Precision	2.5 microns
Alignment System	Automatic
Panel and Mask Handling	Automatic
Exposure Throughput	120 panels/hr (18 x 24 inch panels)

