NexStep 1020 SXE

ANVIK

Lithography and Laser Processing

Multifunction Projection Patterning System for Optoelectronics, Microsystems and Biophotonics

The Anvik NexStep™ 1020 SXE microlithography system is a revolutionary advance in *multifunction* laser processing systems. It is an ideal low-cost mini-stepper that offers the unique combination of high-resolution *projection* lithography in photoresists, photoablation in polymers, and high-fluence materials processing of semiconductors and other materials, making it the ideal patterning tool for both pilot production and exploration of new frontiers in micro-optics, optoelectronics, MEMS, microfluidics, and biophotonics in a multi-user, multidisciplinary environment.

High-Resolution Projection Imaging

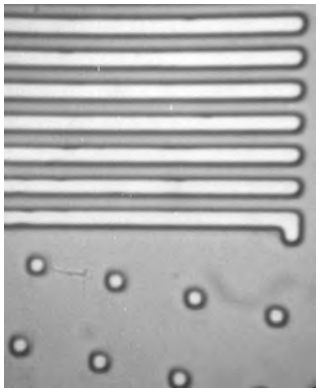
- **Diffraction-limited projection system provides optical resolution of 2 µm over entire field**
- **High resolution produces channels, holes, etc. with excellent edge definition and wall profiles**
- **Projection imaging eliminates limitations of contact / proximity printing and direct writing**

Versatile Substrate Handling

- **Designed for processing substrates of different sizes (up to 150 x 150 mm) and shapes**
- **Capable of patterning on substrates of a wide range of thicknesses — from 0.05 to 5.0 mm**
- **Able to handle both rigid (Si wafers, glass plates, etc.) and flexible (e.g., polymer sheets) materials**

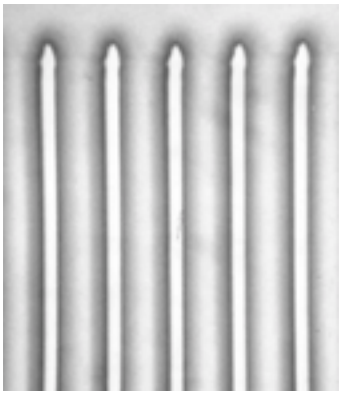
Multifunction Capability

- **High-resolution projection patterning of photoresists, polymers and biosurfaces**
- **Fabrication of MEMS, integrated optics and microfluidics in rigid and flexible materials**
- **Processing of plastics, e.g., polyvinyls, acrylics, polycarbonates and polyesters**
- **Laser crystallization of amorphous semi-conductors and optoelectronic films for large-area displays and integrated sensors**



Left: 2 μm lines, spaces and holes patterned with a 248 nm Anvik system in a deep UV photoresist.

Right: Channels of 5.6 μm width ablated in 8.3 μm thick polyimide using a 308 nm Anvik system.



Versatility and Upgradability

- **Ideal for process development and materials investigations for diverse applications**
- **Upgradable to higher resolutions (submicron) and larger substrate sizes (> 1000 cm²)**
- **Readily optimized for dedicated use with any specific process and / or materials set**

Technology Transfer Vehicle

- **System is ideal 'pilot tool' for technology transfer to high-volume manufacturing:**

— **Projection system and excimer laser source deliver high resolution, yield and throughput**

— **Upgrade to seamless scanning system enables rapid transition to large-format processing**

NexStep 1020 SXE Specifications

Imaging Technique	Projection step-&-repeat
Resolution	2 μm
Projection System	5:1 reduction refractive lens
Numerical Aperture	0.21 (*f*/2.4)
Depth of Focus	14 μm
Lens Image Field Size	4 mm diameter (at substrate)
Substrate Size	Up to 150 x 150 mm
Substrate Thickness	0.05 - 5.0 mm
Illumination Source	XeCl excimer laser (KrF or XeF optional)
Exposure Wavelength	308 nm (248 or 351 nm optional)
Fluence at Substrate	Up to 1 J/cm²
Substrate Handling	Manual
Alignment System	Manual (automatic optional)

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