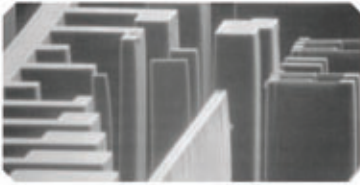
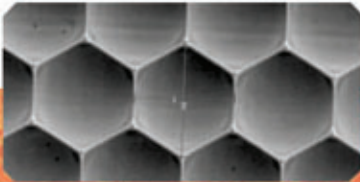


DWL 8000

Advanced Large Area
2D and 3D Exposure System



maskless lithography



HEIDELBERG
INSTRUMENTS

DWL 8000

The new DWL 8000 series is a line of advanced large area laser pattern generators ideal for patterning demanding 2D and 3D micro structures in the fields of micro optics, MEMS, displays and sensors. The DWL 8000's rigid temperature control, dynamic focus tracking and closed loop positioning ensures excellent placement and overlay performance spanning the entire write area.

Years of experience in Gray Scale exposure technology on our smaller systems has enabled us to effectively incorporate this method into the large area DWL 8000 systems. With this high precision fabrication technique a photoresist-coated substrate is raster scanned and exposed using an intensity-modulated laser in order to generate continuous surface-relief profiles in a single exposure step allowing formation of 3D patterns. This technique will remove gray scale photomasks from the process equation, reducing cost and greatly improving prototype lead times. More importantly, the Gray Scale exposure profile can be easily and quickly modified. After a chemical etching process of the photoresist, the 3D arrays can be transferred into other materials by replication, etching or nickel electroforming for embossing or injection molding.

In addition to its 3D lithography capability, the DWL 8000 can also be used for binary exposure enabling medium volume production of large area photomasks.

Resolution, Reliability and Flexibility are fundamental aspects of the new DWL 8000 systems. It incorporates many new functions such as advanced calibration methods to improve system performance and maintenance. Additionally, the new air bearing

Key features and options

- Substrates up to 800 x 800 mm²
- Structures down to 0.7 µm
- Address grid down to 20 nm
- Multiple write modes
- Automatic write mode exchanger
- Advanced 3D exposure mode
- Metrology and alignment system
- Climate chamber
- Customer specific laser source
- Online data transfer
- Automatic loading system
- Multiple data input formats (DXF, CIF, GDSII, Gerber, STL)
- Stage map correction
- Edge detector unit

stage minimizes mechanical resonances, a critical factor in large area 2D and 3D exposures. The automatic calibration of stage positioning is achieved with great efficiency using the Stage Map Correction.

Systems can be configured with automated write head exchanging (Automatic Write Mode), providing an ideal synergy between throughput and resolution for various applications.

Specifications

Write Mode	I	II	III
Address Grid [nm]	20	25	50
Minimum Structure Size [µm]	0.7	0.8	1.7
Write Speed [mm ² /minute]	340	500	1650
Edge Roughness [3σ, nm]	80	85	100
CD Uniformity [3σ, nm]	120	130	150
Stitching [3σ, nm]	80	85	100
Registration [3σ, nm]	350	400	550

Note: Specifications are for binary exposure