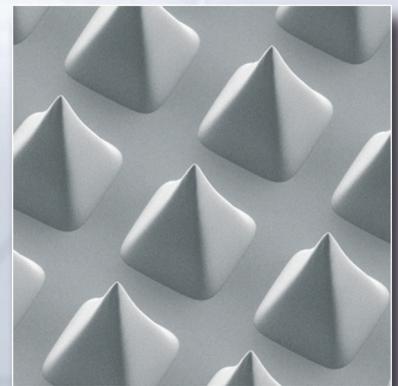


HEIDELBERG
INSTRUMENTS



DWL 66⁺

THE ULTIMATE LITHOGRAPHY RESEARCH TOOL



Pyramids, 50 μm high, 25 μm wide

DWL66+

The Ultimate Lithography Research Tool

The DWL 66+ laser lithography system is an economical, high resolution pattern generator for low volume mask making and direct writing. The capabilities and flexibility of this system make it the ultimate lithographic research tool in MEMS, BioMEMS, Micro Optics, ASICs, Micro Fluidics, Sensors, CGHs, and all other applications that require microstructures.

The customer base of the DWL 66+ includes over 150 leading universities and research facilities worldwide. Many of the system features have been developed in close cooperation with these institutions.

The basic DWL 66+ includes all the features that are needed for successful creation and analysis of your microstructures. It can be used for mask making or direct exposure on basically any flat material coated with photoresist. Numerous optional features increase the flexibility and make the system suitable for more applications. And if one of your applications requires a special technology, it can most likely be implemented in the DWL 66+.

The system can utilize a variety of different lasers, which makes it possible to expose all common photoresists, including UV resists like SU8. In addition to high resolution 2D patterns, it is also possible to create complex 3D structures in thick photoresist by using the Advanced Gray Scale Exposure Mode. By supporting six interchangeable write modes the resolution and throughput of the system can be optimized for each application. The optional vector exposure mode will offer even further flexibility such as excellent smoothness of curved lines and a higher throughput for certain designs like waveguides or microfluidic channels.

To ensure the stability of the system, it is placed in a climate chamber providing a constant temperature. The optical setup, the autofocus system and the interferometer controlled high precision stage system guarantee the quality of the exposed structures. These advanced technologies allow the system to write structures down to 0.6 μm with an address grid of 10 nm.

The DWL 66+ includes two CCD cameras used for metrology and alignment purposes. This enables the system to perform overlay exposures with high accuracy. Arbitrary structures on the substrate can be used for the alignment. The optional backside alignment system uses two additional cameras to align front side exposures to structures on the backside of the substrate. The user menu features wizards for easy setup.

Key Features and Options

Substrates up to 9" x 9"

Structures down to 0.6 μm

Address grid down to 10 nm

Advanced gray scale exposure mode

Real time auto focus system

Customer specific laser source

Vector and raster exposure mode

Exchangeable write modes

Camera system for metrology and alignment

Front to backside alignment

Climate chamber

Multiple data input formats

User programming interface

SPECIFICATIONS

WRITE MODE	I	II	III	IV	V	VI
Address Grid [nm]	10	20	25	50	100	200
Minimum Structure Size [μm]	0.6	0.8	1	2	4	7
Write Speed [$\text{mm}^2/\text{minute}$]	6	25	39	145	500	1000
Edge Roughness [$3\sigma, \text{nm}$]	50	70	80	110	160	240
CD Uniformity [$3\sigma, \text{nm}$]	60	80	100	180	250	500
Alignment Accuracy [$3\sigma, \text{nm}$]	100	120	150	250	400	800