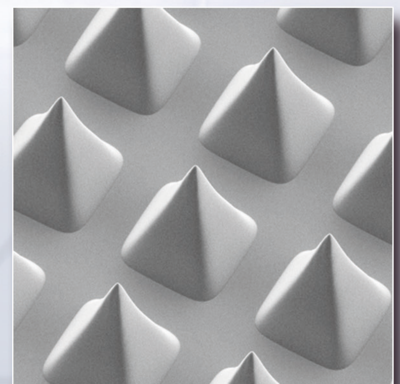
HEIDELBERG
iNSTRUMENTS

DWL 66+

THE ULTIMATE LITHOGRAPHY RESEARCH TOOL



Pyramids, 50 µm high, 25 µm wide

NEW

The DWL 66+ now with the

High Resolution Mode:

Our highest resolution system of all times!

DWL 66+

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 200 leading universities and research facilities worldwide. Many of the system features have been developed in close cooperation with these institutions. Constant enhancements and advancing technology have most recently led to the addition of the High Resolution Mode: with a minimum structure size of 300 nm the DWL 66+ provides the ultimate in high resolution, outperforming or equaling even the most powerful optical lithography systems in the Research & Development market segment.

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 0.3 µm with an address grid of 7 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 0.3 µm
- Address grid down to 7 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	HiRes	I	II	III	IV	V
Minimum Structure Size [µm]	0.3	0.6	0.8	1	2	4
Address Grid [nm]	7	10	20	50	100	200
Write Speed [mm²/minute]	3	6	25	150	600	2000
Edge Roughness [3σ,nm]	50	50	70	80	110	160
CD Uniformity [3σ,nm]	60	60	80	130	180	250
Aligment Accuracy [3σ,nm]	100	100	150	250	400	800

Heidelberg Instruments Mikrotechnik GmbH
Tullastrasse 2 · D-69126 Heidelberg · GERMANY
Phone +49 6221 34300
Fax +49 6221 343030
E-Mail info@himt.de
WEB www.himt.de