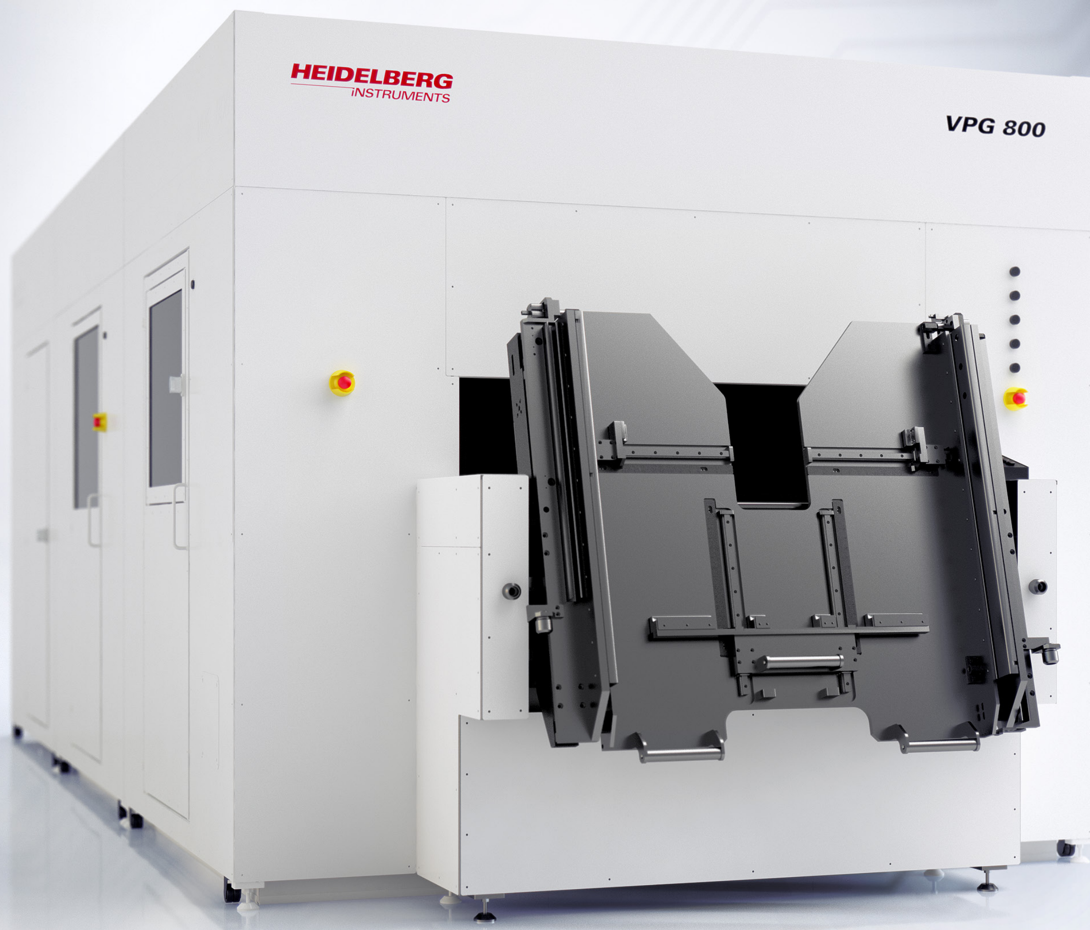
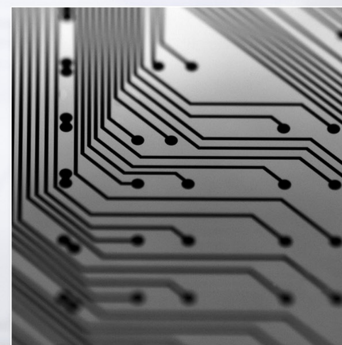
HEIDELBERG INSTRUMENTS



VPG series

THE ULTIMATE PRODUCTION LITHOGRAPHY TOOLS



Photomask with electronic circuits

VPG 800
VPG 1100
VPG 1400

The Ultimate Production Lithography Tools

Introduced in 2007 and based on a patented vast exposure process parallelization, the Volume Pattern Generator (VPG) line of large area lithography systems is now the industry standard. It is the reliable and economical solution ideal for high volume production of today's demanding photomasks in electronic packaging, color filters, light emitting diode, touch panels, as well as direct writing for individual layers on large areas with excellent image quality and registration.

The VPG can be configured with various stage dimensions designed to accommodate substrate sizes of up to 800 mm, 1100 mm or 1400 mm. These systems are equipped with air-bearing stage, semi or fully automatic feeder for substrate loading, and a UV laser source with an output of up to 10 W. The 2-D Stage Map Correction is an automatic calibration tool enabling excellent registration and positioning of written structures. Small write grid ensures excellent edge roughness and stripe butting.

VPG can be configured with automated write mode exchanging unit, providing an ideal synergy between throughput and resolution for various applications. All industrial data formats are supported, and data processing is done in parallel with the exposure eliminating idle time. The incorporated metrology system enables self-calibrating functions and various position measurements. The advanced environmental chamber complies with the rigorous write environment requirements associated with this advanced technology. In addition precise pressure, humidity and temperature measurements are performed to compensate influences on the position measurement.

Additionally, in order to accommodate production of photomasks required in the display industry, the VPG series of Maskless Lithography systems offer special Mura optimization functions for good Mura condition and excellent CD uniformity and resolution.

Key Features and Options

- Ultra high speed exposure engine
- Substrates up to 1400 x 1400 mm²
- Structures down to 0.75 µm
- Address grid down to 12.5 nm
- Real time auto focus system
- High power DPSS laser
- Automatic write mode exchanger
- Camera system for metrology and alignment
- Closed-loop climate chamber
- Automatic substrate loading system
- Stage map correction
- Mura correction
- Edge detector system
- Multiple data input formats
- User programming interface

SPECIFICATIONS

WRITE MODE	I	II	III	IV
Address Grid [nm]	12.5	25	50	100
Minimum Structure Size [µm]	0.75	1	2	4
Max. Write Speed [mm²/minute]	335	1290	4800	16500
Edge Roughness [3σ,nm]	40	50	70	150
CD Uniformity [3σ,nm]	65	75	110	300
Stitching [3σ,nm]	60	70	100	250
Registration [3σ,nm]	200	200	200	200

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