The DWL is a high-precision, optical maskless lithography tool for mask making and direct patterning of microstructures on silicon, film or any other flat material that is previously coated with a photoresist.

Precise control of the laser head and alignment allows the production of 800 nm resolution lithography. The DWL 66FS is an extremely high-resolution imaging system where over a million dpi is achieved using a 50 nm writeable address grid for exposing chrome plates or wafers. The stage is controlled by interferometer and moves continuously in the y-direction while the laser beam is scanning in the x-direction by fast acousto-optical deflection. An acousto-optical modulator with a rise time of less than 10 ns is used for beam splitting (up to four beams) for beam on/off-switching and also for the intensity correction. The ability to perform automatic dose variation enables grayscale lithography.

The capabilities and flexibility of the system allows lithographic processes necessary for applications that require microstructures, such as MEMS, BioMEMS, Micro Fluidics, Sensors, etc.

**Technical specifications**

- Optical autofocus using 4 mm write head.
- Minimum feature size: 1.0 µm (200 nm pixel size, 5.7 mm²/min writing speed).
- Expose small parts samples up through 8” wafers, including masks blanks for photomask fabrication.
- Diode laser: 405 nm wavelength, 50 mW max. power.
- Back to front side alignment (alignment accuracy: 250 nm).
- Grayscale exposure for 3D structures.
- Stability of the system ensured by a climate chamber that provides constant temperature (±0.1°C).
- Equipped with an interferometer stage for maximum alignment accuracy.
- The conversion software accepts standard CAD formats: CIF, DXF and GDSII.

**Contact person:**
Mateu Pla
mpla@ibecbarcelona.eu

**Manufacturer**
Heidelberg Instruments

**Model**
DWL 66FS