



Photolithography



Photolithography uses light to transfer a pattern from a mask to a wafer coated with photoresist. The photoresist film is spin coated on the wafers and the pattern is transferred to the wafer by using a mask aligner. DTU Danchip houses a number of automatic or semi-automatic coaters and mask aligners.

The Maximus 804 is an automatic and programmable cassette-to-cassette spin coater system with capability of handling up to 6" wafers. Its precise and fast running robot is able to gently handle even fragile materials. The Karl Süss RC8 spin coater equipment handles up to 8" wafers. The machine can be operated manually, which renders it especially suited for experimental spinning of different resists. Furthermore, DTU Danchip has several manual spin coaters that can handle substrates from millimeter size up to 8" in size.

The Sono-Tek spray coater applies precise, highly uniform thin-film coatings on non-flat surfaces, thus enabling polymer coating on nanostructured components for imprint lithography or resist coatings on micro-electro-mechanical systems (MEMS).

The Nanoscribe 2-Photon-Polymerization system is designed for fabricating true 2D/3D patterns with feature size less than 200 nm in all three dimensions. The patterning can be performed in different photosensitive materials, such as AZ resists and SU8.

DTU Danchip houses also mask aligners which offer the possibility of both top-side and back-side aligning. The EVG620 mask aligner is a cassette-to-cassette mask aligner with pattern recognition software enabling for automatic alignment. The machine can also perform IR-alignment and handles up to 6" wafers.

The Deep Ultraviolet Stepper Lithography Tool at DTU Danchip transfers patterns with a resolution down to 220 nm with a throughput of more than 50 8" wafers per hour. The machine can illuminate an area of 22 x 26 mm² without stitching and has a stage repeatability of less than 35 nm.

Contact us for further information at sales@danchip.dtu.dk.



Photolithography Equipment

Resist types

AZ5214E (0.5 μ m - 5 μ m)
AZ4562 (5 μ m - 25 μ m)
SU8 (0.1 μ m - 200 μ m)
LOR (Lift-off resist) KrF, UVN

Stepper Lithography

Canon FPA-3000 EX6 DUV
Stepper

Coaters

KS Gamma 2M spin coater
(for stepper lithography)
Maximus 804 spin coater
Karl Süss RC8 spin coaters
OPTIcoat manual spin coaters
Sono-Tek ExactaCoat spray
coater

Mask Aligners

Karl-Süss MA6/BA6 aligners
EVG 620 aligner

3D writing

Nanoscribe Two-Photon
Polymerization system

Misc

Wet lift-off, resist strip,
hotplates, ovens plasma ashers,
developer benches