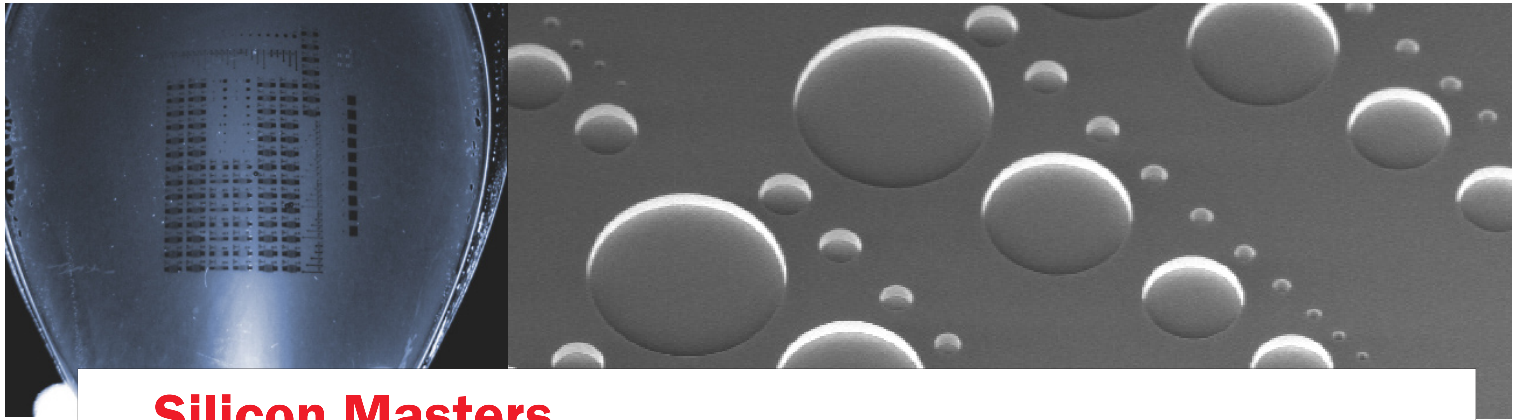

Silicon Masters

AMO offers masters fabricated using various micro- and nanolithography techniques in combination with anisotropic etching.

Process Control:
All grating dimensions are specified and controlled during and after processing. Line width maps, LER characterisation and defect inspectionn are available on request.

Some specifications are matter of negotiation. For further details please contact us.

1. Large Area Nanogratings by IL

The IL technology allows producing large, coherent and periodic gratings with nearly constant pitch. Pattern transfer and further processing can be carried out according to customer requirements.

Pattern type	1 D, rectangular, hexagonal
Substrate material	Silicon or fused silica
Substrate thickness	typical 500 µm to 650 µm
Substrate size	up to 6 inch and any size within
Grating pitch	180 nm to 2500 nm
Etch depth	up to 2500 nm
Line width	40 nm to 1500 nm
Active grating area	up to 140 mm in diameter

2. Nanomasters by EBL

The EBL technology provides the possibility to realize arbitrary nanoscale patterns. Our Gaussian beam system provides ultrahigh-resolution. The definition of large active areas is limited by writing time that is pattern dependent. A quote can easily be provided

Pattern type	arbitrary
Substrate material	Silicon or fused silica
Substrate thickness	typical 500 µm to 650 µm
Substrate size	up to 6 inch and any size within
Smallest feature size	50 nm (or even lower on request)
Etch depth	up to 1000 nm, pattern dependent
Active patterned area	limited by writing time, e.g. a few mm² for ultradense patterns

Bildunterschrift

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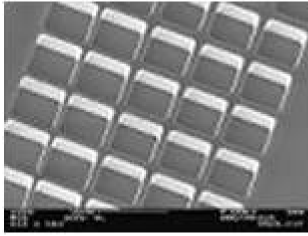
3. Micromasters by Photolithography

Masters can easily produced using photolithography. Here micrometer features can be defined end etched up to 10 µm into the substrate. This technique requires a photomask rthat can either be designed by customer´s needs. We have several photo-masks in stock that might fit your demands.



Bildunterschrift

Mask Aligner

Pattern type	arbitrary
Substrate material	Silicon or fused silica
Substrate thickness	typical 500 µm to 650 µm
Substrate size	up to 6 inch and any size within
Smallest feature size	2 µm
Etch depth	up to 10 µm
Active patterned area	full substrate

I-line Stepper

Pattern type	Arbitrary field size up to 20x20 mm^2
Substrate material	Silicon or fused silica
Substrate thickness	typical 500 µm to 650 µm
Substrate size	6 inch only
Smallest feature size	0,5 µm
Etch depth	up to 5 µm
Active patterned area	full substrate

4. Advanced Masters using mixed Technology

Combination of the above mentioned technologies for the fabrication of complex masters available on request.

- Cost-effective mixing of micro- and nanopatterns
- Multi-level-masters

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