



CORNERSTONE DUV Lithography Services

Design Rules

All resists used in the CORNERSTONE deep-UV lithography service are positive tone meaning that areas that are exposed are opened in the resist. You have the option to order either a dark field reticle (drawn areas are clear on the reticle) or light field reticle (drawn areas are chrome on the reticle).

Note that the alignment marks contained within the alignment marks file (NDA required) are drawn for dark field reticles.

Design rules

The following design limitations should be followed to avoid the risk of your designs not resolving correctly (for 700 nm thick resist):

- Minimum resist feature width when length is $>20 \mu\text{m}$: 350 nm
- Minimum resist feature width when length is $<20 \mu\text{m}$: 250 nm
- Minimum gap between resist features: 200 nm

The reason for these rules is that the minimum resist thickness we currently implement is 700 nm. Therefore, considering the aspect ratio of the resist, we have observed that long ($> 20 \mu\text{m}$), thin ($< 350 \text{ nm}$) resist features collapse during development. Short, thin resist features are more robust but still risky to pattern. Gaps in resist can be as small as 200 nm, at which point we reach the absolute resolution of the scanner determined by the wavelength of the laser ($\lambda = 248 \text{ nm}$).

If you require either $1 \mu\text{m}$ or $1.3 \mu\text{m}$ thick resist, the minimum features should be larger. This has not been accurately characterised so you do this at your own risk.