

# Etching



DTU Danchip offers a number of facilities to conduct both wet chemical etching and plasma-assisted etching of semiconductors, dielectrics and metal films for high fidelity pattern definition. Wet etches are ideally suited for parallel processing and are in general isotropic although some wet etches have specific anisotropic etch profiles.

Dry etching (plasma assisted etching) has the advantage of being directional (anisotropic) and allows, due to the variety of process parameters, for a fine tuning of the etch with respect to etch profiles, selectivity, and aspect ratio.

DTU Danchip provides separate plasma etch tools for silicon, silicon dioxide, metals, polymers as well as InP- and III-V alloys. Deep reactive ion etch in silicon with high etch rates can be achieved using switched or non-switched processes.

Metals such as aluminum, titanium and chromium, and semiconductors such as AlGaAs and InP can be dry etched by Inductively Coupled Plasma (ICP). Separate but similar tools are used to etch silicon dioxide and silicon(oxy)nitride.

To supplement the material specific tools an Ionfab300+ Ion Beam Etch (IBE) is available, capable of etching any material and able to handle substrates up to 8" in size.

DTU Danchip furthermore has a substantial range of chemicals, kept in inventory and processes approved for wet-etching of metals, silicon oxide, silicon nitride, polymers, bulk glass, and III-V alloys.

To access our etching equipment, contact us for further information at [sales@danchip.dtu.dk](mailto:sales@danchip.dtu.dk).



## Etching Equipment

### Reactive Ion Etch (up to 4")

- Si, SiO<sub>2</sub>, SiN<sub>x</sub>, polymers, III-V alloys

### Ion Beam Etch (up to 8")

- Metals, Ceramics, III-V alloys

### Advanced Silicon Etch (DRIE-Pegasus and ASE, up to 6")

- Silicon

### Advanced Oxide Etch (up to 6")

- SiO<sub>2</sub>, SiN<sub>x</sub>, SiO<sub>x</sub>N<sub>y</sub>, quartz

### Inductively Coupled Plasma (up to 6")

- Metals, Polymers, III-V alloys

### Wet Etch (up to 8")

- Aluminum Etch, HF, Isotropic Silicon Etch, KOH, SiN<sub>x</sub> Etch, various III-V wet-etches