DRY ETCHING

ChipsC² LT
CHIPS COMPETENCE CENTRE

Plasma-based precision processing for micro- and nanofabrication

What We Offer

Design & Simulation | Prototyping & Fabrication | Testing & Characterization

Dry etching is a plasma-based process that delivers precise, directional material removal through RF-activated reactive gases, offering superior control compared to wet etching. It is ideally suited for high-precision micro- and nano-fabrication.

Key applications

Semiconductor device fabrication

Micro- and nano-scale patterning

Research and development

ICP-RIE - Inductively Coupled Plasma Reactive Ion Etching

Plasmalab System100 – ICP 65 Oxford Instruments Plasma Technology

- **Plasma source:** Separate generators for inductively coupled plasma up to 1 kW and substrate bias up to 600 W
- **Process gases:** Cl_2, BCl_3, SF_6, O_2, Ar
- **Endpoint detection:** Optical
- **Wafer size:** Up to 200 mm (8") wafers (configured for 2"–4")

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PlasmaPro 100 Cobra Oxford Instruments Plasma Technology

- **Plasma source:** Separate generators for inductively coupled plasma up to 3 kW and substrate bias up to 300 W
- **Process gases:** O_2, N_2, Ar, SF_6, CH_4, H_2, Cl_2, BCl_3
- **Endpoint detection:** Laser endpointing (Horiba LEM G50)
- **Optical emission spectroscopy:** Ocean Optics USB400
- **Wafer size:** Up to 4" (carrier wafer used for smaller samples)

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Capabilities

Dry etching of:

- Semiconductors: GaN, AlN, InN, AlGaN, InGaN, InAlN, Si
- Metals: Ti, Al, Ni, Cr
- Dielectrics: SiO_2, SiN_x, Al_2O_3

Features

- Independent RF and ICP generators allow separate control of ion energy and plasma density, providing high process flexibility
- Chemical and ion-induced etching
- Can be used in RIE mode for certain applications with a low etch rate
- Wafer backside cooling for temperature control

RIE – Reactive ion etching

PlasmaPro 80 Oxford Instruments Plasma Technology

- **Plasma generator:** Up to 300 W
- **Process gases:** O_2, Ar, CHF_3, CF_4
- **Wafer size:** Up to 4"
- **Table temperature:** 20 °C

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PE2000 South Bay Technology

- **Plasma generator:** Up to 150 W
- **Process gases:** O_2, CF_4
- **Chamber size:** 200 × 100 mm (OD × H)
- **Table temperature:** 20 °C

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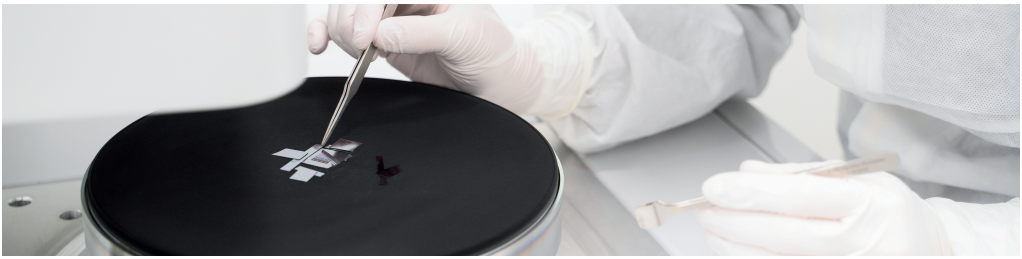
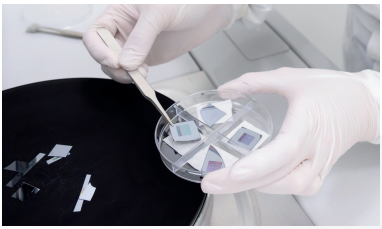
Capabilities

- Si_3N_4 and SiO_2 dry etching
- Resist cleaning and removal





If you have any questions, please contact us by email:
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