PAUL SCHERRER INSTITUT

PSI

PICO

Oxford DRIE

Responsible

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System Description

Our Oxford DRIE is a Plasmalab System 100 Inductive Coupled Plasma Deep Reactive Ion Etching (ICP DRIE) tool from Oxford[1]. It is the older version of the new PlasmaPro 100 Estrelas DRIE.

It has a Load-lock and a liquid nitrogen cooled cryo-stage and fast gas switching, that allows for deep reactive cryo-etching with smooth side walls and improved selectivity. It is used for deep etching of Si, for instance for making through silicon vias (TSVs) using the Bosch process.

Sample size:

Up to 100mm wafers.

Materials restrictions:

Si only, Au free!

Please check the material compatibility (e.g. for mask materials) with the LNQ staff every time you need to etch new materials not declared in your PICO project.

Gases available:

SF6, CHF3, C4F8, He, O_2, N_2, Ar

Total gas flow: 10 – 100 sccm

Pressure: 10 – 100 mTorr

End point detection:

The etcher is equipped with a laser interferometer endpoint detector.

Substrate holder temperature:

Liquid nitrogen cooling for cryo etching.

Temperature: -100 °C to 200 °C

Helium backside cooling, Helium pressure: 0 – 10 Torr

Power supplies:

Table Power: 50 – 200 W 13.56 MHz RF generator

ICP power: 200 – 2500 W

Check the short manual and the internal wiki page for more details on RIE etching and processes available with this tool.

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[1] Previously known as "ICP" in the old cleanroom in ODRA