

PlasmaPro™ 800Plus

Large capacity open-loading process solutions
for plasma etch and deposition



The Business of Science®



8000

PlasmaPro 800Plus



Versatile plasma etch and deposition solutions

The **PlasmaPro 800Plus** offers a large area plasma etch and deposition solution with convenient open loading in a compact, small footprint system, making it easy to site and easy to use, with no compromise on process quality.

The **PlasmaPro 800Plus** with 380mm or 460mm diameter table offers full 300mm or large batch 43 x 50mm (2") capacity, enabling full production solutions in a small cleanroom footprint.

Wide range of applications, including:

- High quality PECVD of silicon nitride and silicon dioxide for photonics, dielectric layer passivation and many other applications
- Failure analysis dry etch de-processing using our specially configured failure analysis tools, with RIE and dual-mode RIE/PE processes ranging from packaged chip and die etch through to full 300mm wafer etch
- SiO₂, SiN_x and quartz etch
- Metal and polyimide etch
- Passivation deposition for high brightness LED production
- III-V etch processes

Range of electrode sizes and wafer capacity

Wafer stage (lower electrode) sizes	380mm RIE/PE	460mm RIE & PECVD
Wafer loading capacity*		
50mm/2"	30	> 40
75mm/3"	13	21
100mm/4"	8	12
150mm/6"	3	5
200mm/8"	1	2
300mm/12"	1	1



Multiple Process Technology Configurations

PlasmaPro 800Plus PECVD Tool

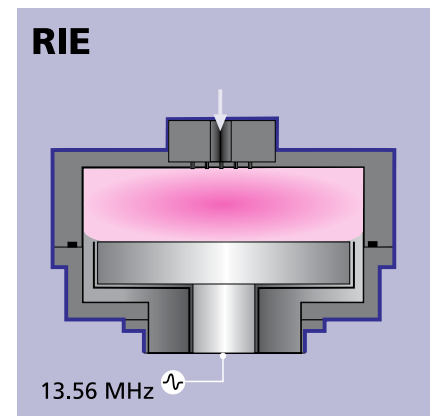
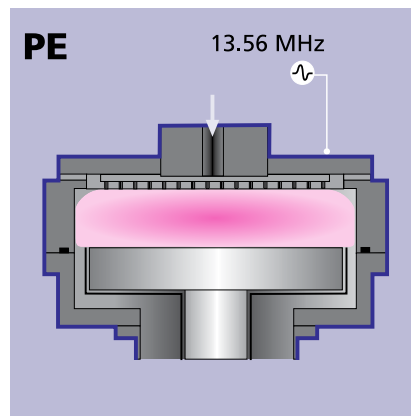
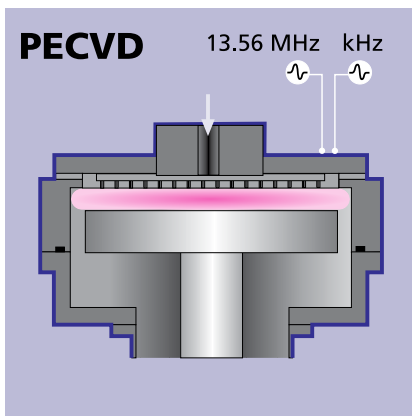
Designed to produce high quality uniform dielectric films. Stress control in PECVD is provided by selectable or mixed high/low frequency plasma power, enabling deposited films to be tuned for tensile, compressive or low stress.

PlasmaPro 800Plus RIE/PE Tool

Combines anisotropy of RIE with selectivity of PE mode etching in a single system.

PlasmaPro 800Plus RIE Tool

Proven dry etching used widely throughout the industry.



Optimised Plasma Sources

Optimised showerhead design delivers high performance PECVD processes with excellent deposition uniformity.

High performance process control with etch end pointing



8000

Benefits of **PlasmaPro** 800Plus

The **PlasmaPro** 800Plus offers numerous benefits, including:

- High performance processes
- Substrate temperature control
- Process control – etch end point detection
- Reliability and diagnostics
- Range of electrode sizes and wafer capacity

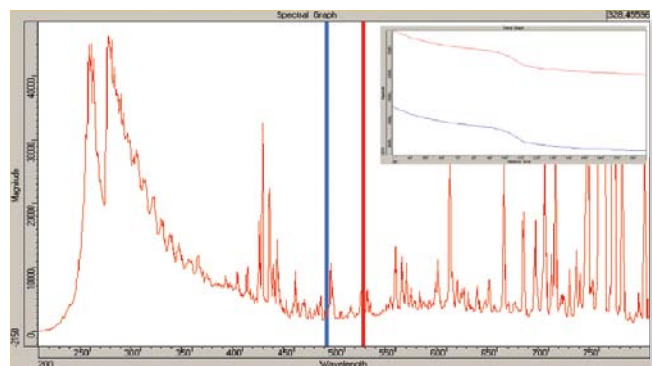
High performance processes

PlasmaPro 800Plus optimised electrode cooling results in excellent process control, wafer temperature uniformity and great flexibility, covering a wide range of processes.

- Enhanced process uniformity and rates are guaranteed by using a high-conductance radial (axially symmetric) pumping configuration
- The addition of datalogging of the capacitor values offers traceability and history of chamber and process conditions
- A close-coupled turbo pump provides high pumping speed and excellent base pressure
- Optimised plasma conditions are enabled by three levels of control of matching capacitor values:
 - Easy automatic plasma generation using full automatic matching network
 - Faster switch-over between widely differing processes using the range of preset capacitor values
 - Process fine tuning and diagnostics with the use of recipe-settable capacitor values in **PC2000™** software



- Optical emission spectrometry (OES) for large sample or batch process end-pointing by detecting changes in etch by-products or depletion of reactive gas species, and for chamber clean end-pointing



800

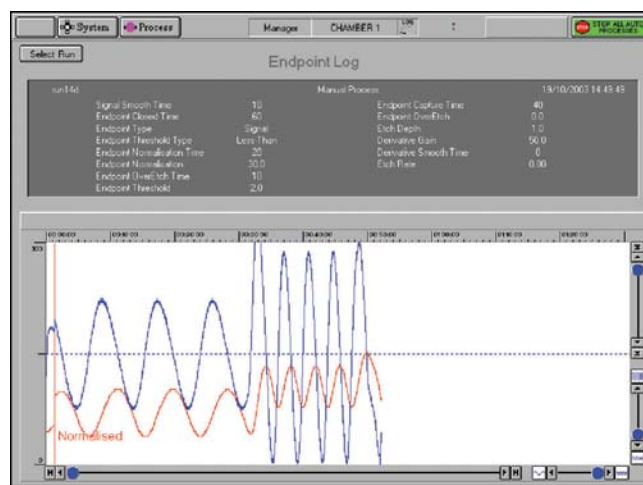
Substrate temperature control

Substrate temperature control is provided by a range of fluid-cooled and/or electrically-heated electrodes, 460mm in diameter, with a temperature range up to 400°C. This results in excellent electrode temperature control and stability.

Process Control – Etch end point detection

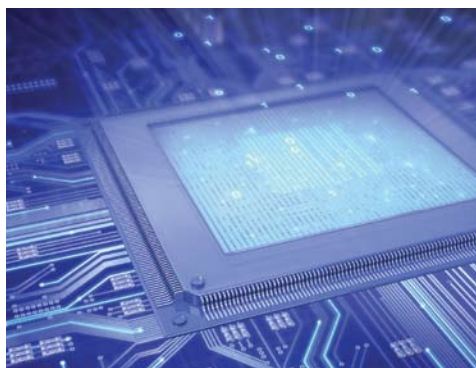
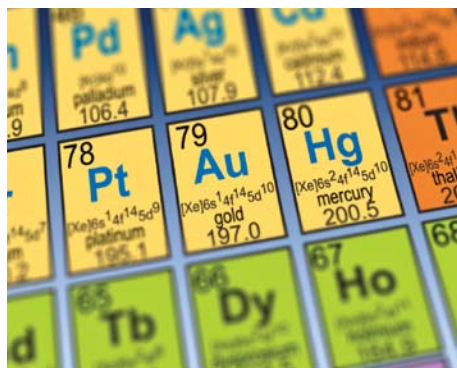
Excellent etch control and rate determination can be provided by optional end-point detection, integrated with **PC2000** process tool software.

- Laser end-point detection using interferometry to measure etch depth in transparent materials on reflective surfaces (for example, oxides on Si), or reflectometry for non-transparent materials (such as metals) to determine layer boundaries



Easy open access

Clear access to the lower electrode and smooth, particle free chamber opening operation is provided by the reliable pneumatic hoist mechanism.

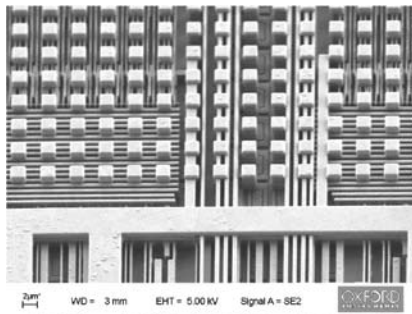


Plasma accelerator and gas control

Plasma Accelerator for Advanced Die Processing

Innovative processes developed for fast de-processing of packaged devices using focussed plasma.

Oxide etch rate is 8 times faster than ICP mode, and 20 times faster than RIE mode process.



Four metal layers of a packaged device can be exposed in less than five minutes using both ICP and RIE processes. The standard process would take more than 60 minutes



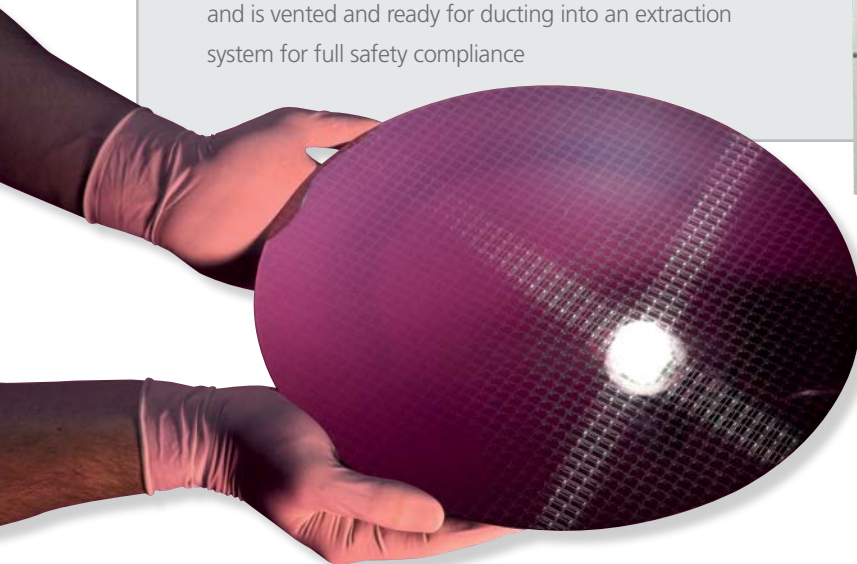
The plasma is concentrated above the packaged device to be etched

Delivers up to 20 times faster etching rates

Gas Control System

4-, 8- or 12-line gas pod options enable maximum process flexibility, with easy upgrade from 4 to 8 or 8 to 12 gas lines

- The gas pod may be sited remotely in a service area, and is vented and ready for ducting into an extraction system for full safety compliance



Software control and system support

Process tool software

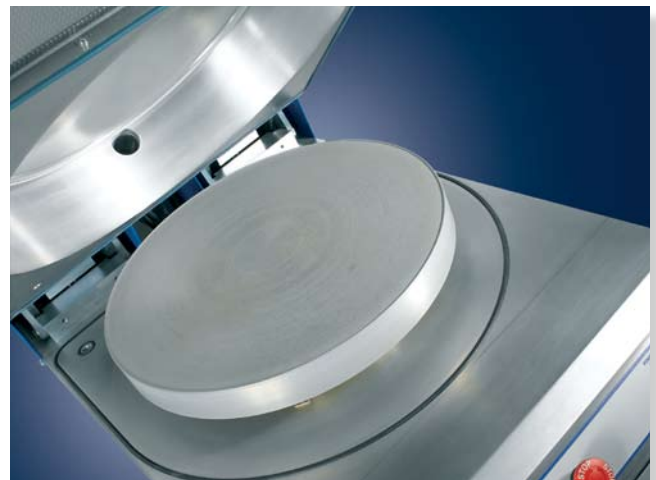
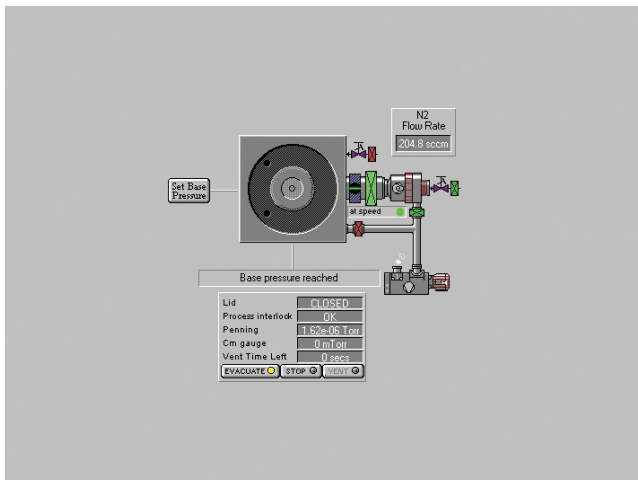
Oxford Instruments software is renowned for its clarity and ease of use, making it quick to train process operators while retaining full functionality for fab managers and service staff.

- The front end visual interface, which controls and monitors the process tool, is configured exactly for the customer's system
- Process recipes are written, stored and recalled through the same software, building a library
- Password controlled user login allows different levels of user access and tasks, from 'one-button' run operation to full system functions
- Continuous system data logging ensures effective traceability of each wafer and process run
- Fully GEM/SECS compatible

Cost of ownership and customer support

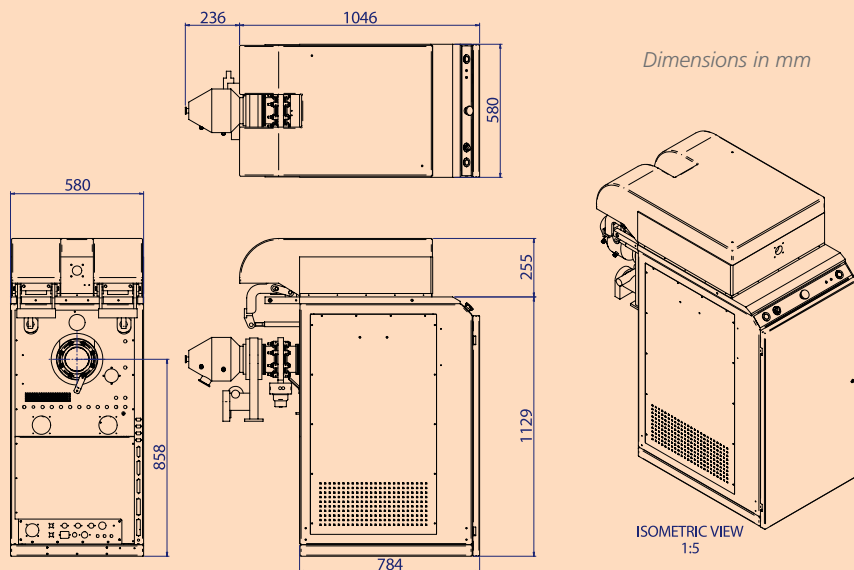
We work with our customers to create the right system, process, and support package to meet your specific requirements, so our range of Service Level Agreements (SLA) will be tailored to your needs. This can include:

- Guaranteed response times for support engineer visits and technical hotline calls
- Choice of support coverage up to 24/7
- Scheduled preventative maintenance calls
- Managed spares inventory options, including customer dedicated stock, via our parts locations worldwide
- Preferential spare part pricing
- Process training
- Certified maintenance training courses for customer's own engineers in preventative maintenance and first level troubleshooting



Technical specifications

Overall dimensions of the PlasmaPro 800Plus



Oxford Instruments Plasma Technology

For more information please email:
plasma@oxinst.com

UK

Yatton
Tel: +44 (0) 1934 837000

Germany

Wiesbaden
Tel: +49 (0) 6122 937 161

Japan

Tokyo
Tel: +81 3 5245 3261

PR China

Beijing
Tel: +86 10 6518 8160/1/2

Shanghai
Tel: +86 21 6132 9688

Singapore

Tel: +65 6337 6848

US, Canada & Latin America

Concord, MA
TOLLFREE: +1 800 447 4717

www.oxford-instruments.com

Worldwide Service and Support

Oxford Instruments is committed to supporting our customers' success. We recognise that this requires world class products complemented by world class support. Our global service force is backed by regional offices, offering rapid support wherever you are in the world.

We can provide:

- Tailored service agreements to meet your needs
- Comprehensive range of structured training courses
- Immediate access to genuine spare parts and accessories
- System upgrades and refurbishments



visit **www.oxford-instruments.com** for more information

This publication is the copyright of Oxford Instruments plc and provides outline information only, which (unless agreed by the company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or regarded as the representation relating to the products or services concerned. Oxford Instruments' policy is one of continued improvement. The company reserves the right to alter, without notice the specification, design or conditions of supply of any product or service. Oxford Instruments acknowledges all trademarks and registrations. © Oxford Instruments plc, 2010. All rights reserved. Ref: OIPT/800/2010/02



The Business of Science®