

# 1000

## PlasmaPro<sup>®</sup> 100 Polaris

Leading the way with single wafer etch solutions



*The Business of Science<sup>®</sup>*



# 100

## PlasmaPro 100 Polaris

Single wafer etch solutions for PSS and GaN in the HBLED market

Oxford Instruments Plasma Technology presents an evolution in single wafer etch technology. With extensive experience of etching materials, our technologies enable the cost of ownership and yield required to maximise the performance of your devices.

The **PlasmaPro 100** Polaris single wafer etch system offers smart solutions to produce the etch results you need to maintain your competitive edge.

### Production manufacture

Designed specifically for the harsh chemistries required for etching tough materials such as GaN, Sapphire and SiC, the **PlasmaPro 100** Polaris delivers fast etch rates uniformly on wafers up to 200mm diameter. Above all it has been developed with reliability, uptime and ease of serviceability in mind.





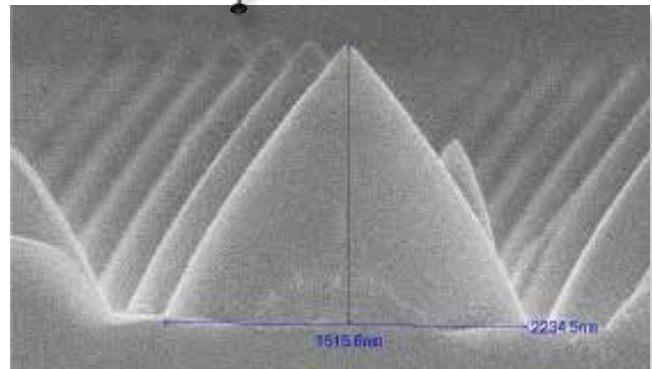
# PlasmaPro 100 Polaris

Superb etch rates

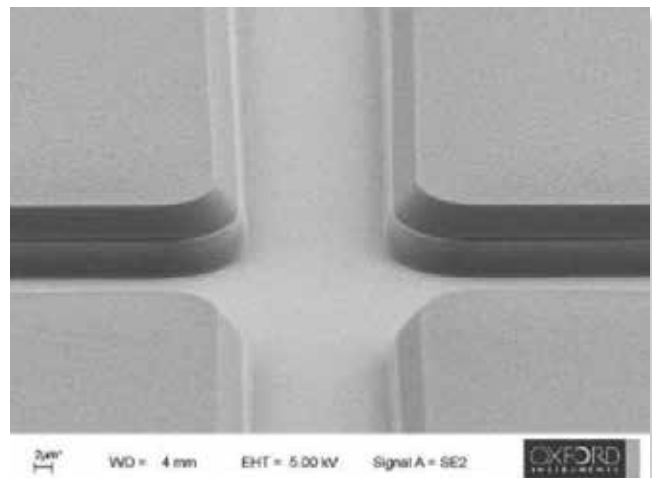


Focused on ensuring the greatest uptime and highest throughput, key system features and benefits include:

- Exclusive Electrostatic Clamp technology capable of clamping
  - Sapphire
  - GaN on Sapphire
  - SiC
- Actively cooled electrode to maintain sample temperature during etch process
- High power ICP source producing high density plasmas
- Magnetic spacer for enhanced ion control and uniformity
- High conductance pumping system
- Reliable hardware and ease of serviceability for excellent uptime



Patterned Sapphire substrate for GaN growth



Typical GaN etched feature, PR remains intact

# PlasmaPro 100 Polaris

Excellent, superior technical capabilities



## Low cost of ownership

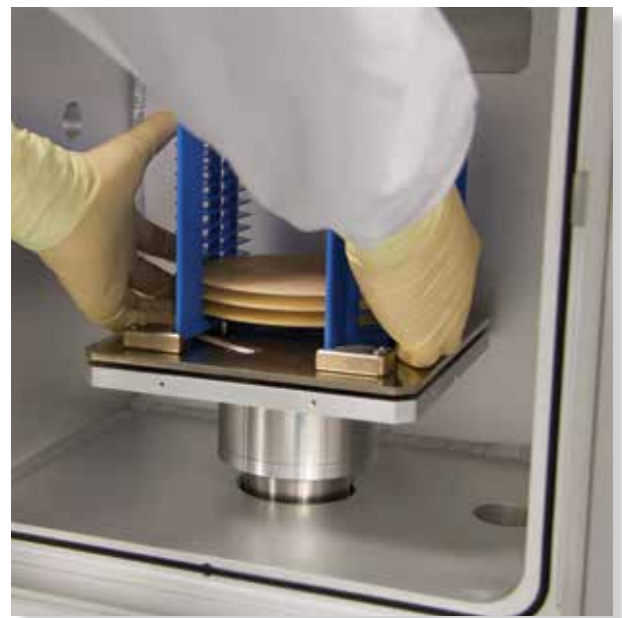
**PlasmaPro 100 Polaris** has been developed with cost of ownership in mind. Rapid component exchange is achieved by ease of access to the tool's interior.

**PlasmaPro 100 Polaris** incorporates many standard components ensuring stock availability and quick delivery in addition to high tool uptime and productivity.

## Cluster platform

For the ultimate in throughput and productivity, the **PlasmaPro 100 Polaris** etch system is available on an industry standard handling platform with options upto and including dual cassette with six etch modules.

Wafer alignment has been optimised for transparent substrate handling.



## PlasmaPro 100 Polaris

### Hardware capability

#### Reliability and diagnostics

Fault and tool status diagnostics are achieved through the front end software. The system reports on the status of key components, leading to rapid and detailed fault identification.

#### High density plasma etch source

High rates and outstanding uniformity are achieved through advanced ICP design and magnetically enhanced ion density control.

#### High conductance pumping system

Enhanced process uniformity and rates are guaranteed by using a high-conductance pumping chain in combination with a high capacity turbo pump.

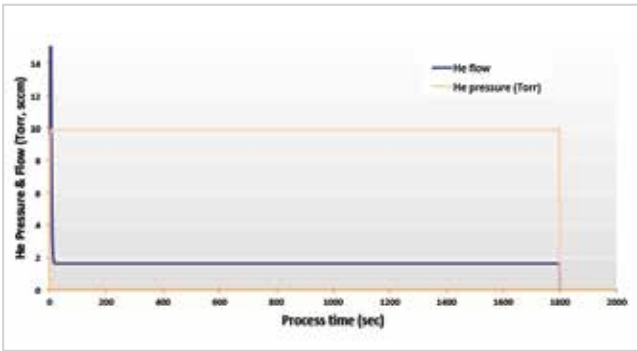
#### Advanced auto matching unit (AMU)

The advanced AMU allows fast, efficient and accurate matching, enabling excellent process repeatability.

#### Heated chamber liners

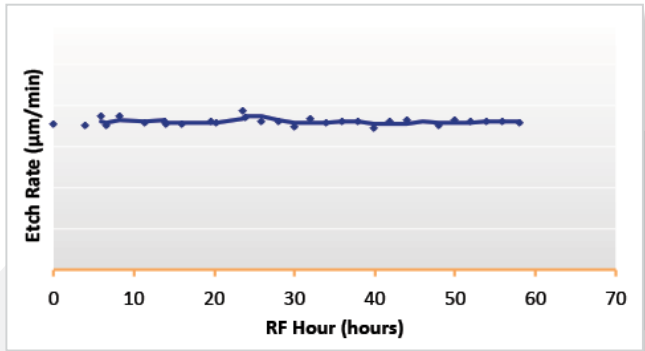
The heated chamber liners are optimised to reduce chamber wall deposition. This enables increased MTBF and MTBC while reducing MTTC, maximising tool productivity.

#### Clamping of insulating substrates



Clamping of a variety of materials including bare sapphire wafers is possible with the unique ESC hardware. (Figure 1)

#### Run-to-run repeatability



'Run to Run' repeatability delivers excellent yield results, ensuring maximum output from the system. (Figure 2)



# 1000

## PlasmaPro 100 Polaris

### System control and global process support

#### System control

Clear and simple to use software ensures ease of use for process operators, while retaining the full functionality for production facility managers and service staff.

- Fully SECS/GEM compatible
- 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, allowing a comprehensive recipe library to be built
- Password controlled user login allows different levels of user access and tasks, from 'one-button' run operation to full system control
- Continuous system data logging (50ms) ensures effective traceability of each wafer and process run



Low cost of ownership and world class customer support

#### Global process support for the lifetime of the tool

The priorities of Oxford Instruments' applications teams are fast turnaround of pre-sale development samples, as well as effective post-sales support for the lifetime of the tool.

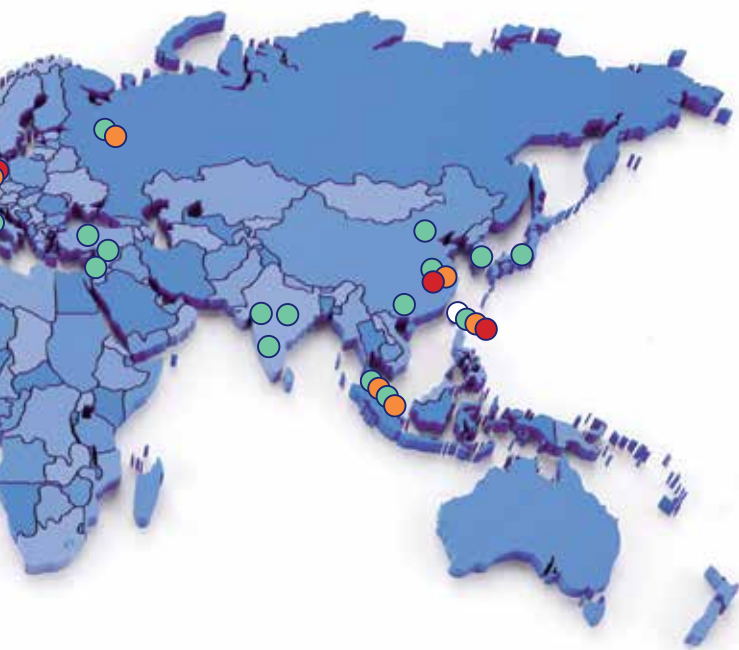
To achieve this, we have dedicated applications laboratories at our UK headquarters, as well as Taiwan. In our laboratories we have an installed base of over 25 plasma systems on which our engineers are constantly optimising processes and delivering on hardware developments.





# PlasmaPro 100 Polaris

## Cost of ownership and global customer support



### Cost of ownership and customer support

We work with you to create the right system, process, and support package to meet your specific requirements. Our range of Flexible Support Agreements will be tailored to your needs.

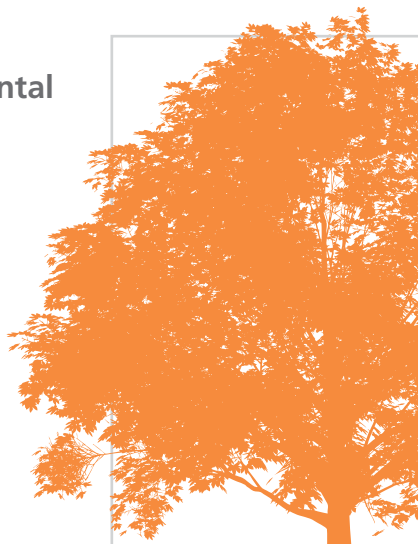
This can include:

- 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 training courses for your own engineers in preventative maintenance and first level troubleshooting

### Superior environmental efficiency

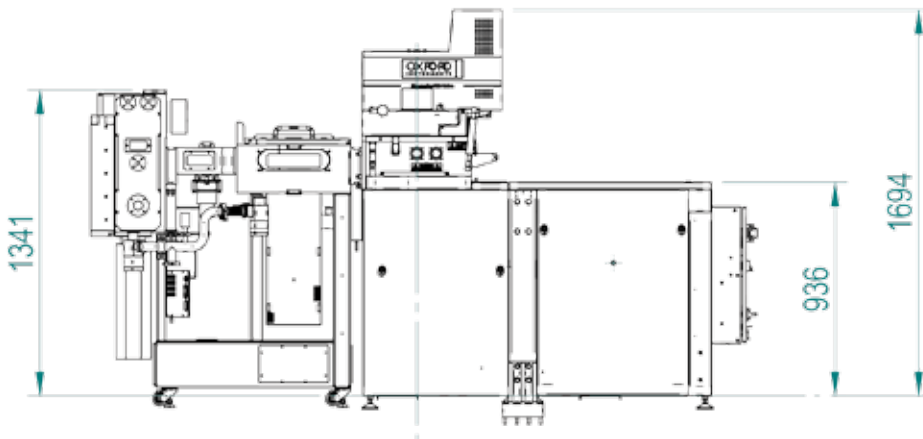
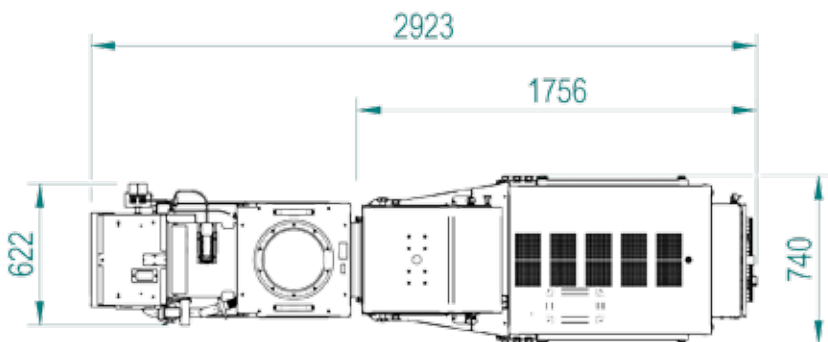
**PlasmaPro 100** Polaris has a low heat load and high energy efficiency.

The tool's efficient ergonomics and compliance to Semi S2/S8 and cluster capability make this a tool of choice for production users.



# PlasmaPro 100 Polaris

## Technical specifications



All measurements in mm

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