

# PVD Products Nano PLD



The PVD Products Nano PLD system is capable of depositing high quality films on substrates up to 2-inch in diameter. Like our larger PLD systems, this unit features a rectangular box style chamber with front mounted hinged door easy access of substrates and target changes. The chamber includes multiple user accessory ports for target and substrate viewing, sputter or ion source, as well as spectroscopy. Our substrate heater uses IR lamps that are easily field replaceable. Substrates can be heated to 950°C without using silver paste. Temperature uniformity of  $\pm 5^{\circ}\text{C}$  is achievable. The heater has a water-cooled shroud to minimize the thermal effects on the chamber walls. A complete enclosed optical train is provided and the system is compatible with PVD's optional Intelligent Window. Provides the ability to easily grow epitaxial and multi-layer films.

A large water-cooled plate protects the targets from the heater radiation. Either four 2-inch diameter targets or eight 1-inch diameter target carousels are available along with programmable target rastering and indexing. The base pressure is below  $5 \times 10^{-7}$  Torr using a rear mounted 300 l/sec turbo pump package. Includes manual vacuum valves and all necessary vacuum gauges. Various options include substrate rotation, heater mounted to a Z-stage for variable target-to-substrate distance, closed-loop pressure control, load-lock, ion gun, magnetron sputter source, complete HP RHEED systems, Nano-particle production, our unique Intelligent Window, programmable laser beam rastering etc. The system comes with a lap top computer to operate all the system functions as well as the excimer laser. This system is ideal for those starting up a PLD lab.



•PVD Products, Inc. •35 Upton Drive, Wilmington MA, 01887  
Phone: •978-694-9455 •[www.pvdproducts.com](http://www.pvdproducts.com) •Fax: •978-694-9477



## **NANO PLD System Specifications:**

Maximum substrate size: One 2-inch or multiple small substrates.

Maximum substrate temperature: 950°C (in oxygen) for all substrates materials in oxygen pressure up to 400 Torr. Thermal paste required with non-rotating substrate. Thermal paste is not required for rotating substrates.

Temperature uniformity:  $\pm 4^{\circ}\text{C}$  across 2-inch diameter Si substrate

Operating Pressure Range:  $5 \times 10^{-7}$  Torr base to 500 mTorr

Target Size: Four 2-inch diameter targets or eight 1-inch diameter targets.

Target to Substrate (Throw) Distance: Fixed at 75 mm, Optional Z-stage available (50 to 100 –mm).

Nominal Angle of incidence of the laser beam on target:  $60^{\circ}$

Base Pressure of the Main Chamber:  $P < 5 \times 10^{-7}$  Torr guaranteed, with system at room temperature.

Base Pressure with Load Lock:  $P < 5 \times 10^{-8}$  Torr guaranteed, with system at room temperature without targets in the chamber.

Operational Wavelength: 248 nm (KrF) or 193 nm (ArF) others available on request

Optical Train: Fully enclosed, includes automatic open/close of laser shutter, manual aperture set to adjust beam size, Kinematic mirror mounts for fine positioning of beam.

## **System Options:**

Dual Wafer Load lock for fast turnaround time and improved chamber base pressure.

Ion source for IBAD or magnetron sputter source

RHEED Packages

Additional MFC's

Custom Substrate Holders

**Note:** Specifications subject to change.



**Examples of Various  
Substrate Holders**



**Carousel for Four x 2”  
Diameter Targets**

