NL-Cube Compact PVD System

Compact footprint

Up to 5 thin film and Nanoparticle sources

Sputter up or sputter down

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Overview

NL-Cube compact PVD system

The NL-Cube is a compact and flexible PVD system that offers thin film, nanoparticle, and alloy deposition capabilities. There are two models: the **375** (up to five sources and substrates up to four inches in diameter) and the **300** (up to four sources and substrates up to two inches). Because of their relatively low volumes, the chambers offer rapid pump down and turnaround times.

Each system is compatible with a variety of sources including magnetrons, a nanoparticle source, thermal boat source, mini e-beam source, and atom and ion sources. The systems can be configured in either sputter up or sputter down configurations. Substrate rotation, bias, and heating up to 800°C options are available.

The chamber is manufactured in the UK using high quality 304 stainless steel with a lightweight Aluminium door. It is mounted on a system chassis which contains the control systems, power supplies and backing pump. The entire system is on wheels for locating and lockable feet once located.

The integrated PC and Intuitive Spectrum software allows the user to configure their own virtual rack, log data and run complex recipes.

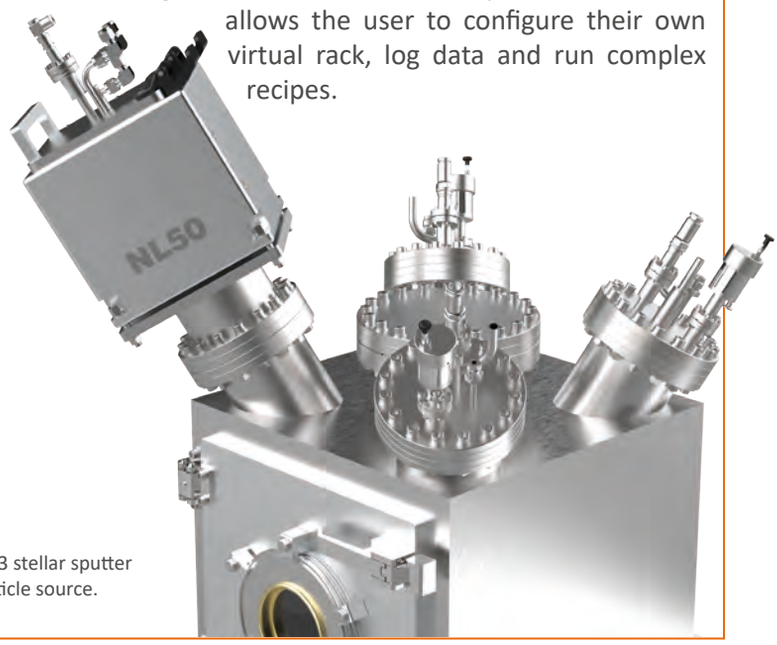

Fig. 1. Cube 375 fitted with 3 stellar sputter magnetrons and a nanoparticle source.

Specifications

	Cube 300	Cube 375
Size of deposition chamber	300 x 300 x 300mm	375 x 375 x 735mm
Base pressure	< $1e^{-6}$ Torr	< $5e^{-7}$ Torr
Orientation	Sputter up or sputter down	
Sample table options	2-inch wafer, 20rpm rotation, RF/DC Bias and heating to 400°C	4-inch wafer, 20rpm rotation, RF/DC Bias and heating to 800°C
Pumping	80l/s turbo with 7.2m^3/hr dry backing pump	300l/s turbo with 7.2m^3/hr dry backing pump
Control software	Recipe driven processes, power supply control and data logging. Optional automated pumping sequences (with pneumatic valves)	
In-situ monitoring	Quartz Crystal Microbalance for process monitoring and end point detection	
Source ports	Up to 4 deposition sources	Up to 5 deposition sources
Source types	Nanaoparticle source, Magnetron sputter sources, Mini-e-beam evaporator, Thermal boat source, K-cells, Ion source, RF Atom source	
Typical source to substrate distance	170mm	200mm
Film uniformity	+/- 2% with sample rotation (for sputter sources)	

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