

PE Atomic Layer Deposition System

The NLD-4000 is a stand alone, PC controlled ALD system with LabVIEW software featuring four levels password-controlled user authorization. The system is fully automated and safety-interlocked. It offers flexibility to deposit multiple films such as Al_2O_3 , AlN , TiN , ZrO_2 , LaO_2 and HfO_2 for hydrophobic or hard coatings and high-k dielectrics. It has a 12" aluminum reaction chamber with heated walls and a pneumatically lifted top for easy chamber access and cleaning. The system features an onboard gas pod containing up to seven heated 50ml cylinders for precursors and reactants with fast-pulse heated delivery valves using N_2 or Ar as a carrier gas. It is designed with minimum process chamber volume for fast cycle time. Options include automatic load-unload (for 6" substrates), ICP source, Ozone generator, and custom chambers for non standard or larger substrates. It is capable of depositing Al_2O_3 films on 6" wafers with +/- 1Å uniformity.



Optical Coating System

The NANO-MASTER NOC-4000 Optical Coating System provides state of the art atomic cleaning and polishing of optical samples in one chamber and fully automated sample transfer to a second chamber for sputtering or ion beam sputter coating without breaking vacuum. The system also allows the use of each chamber independently with automatic loading and unloading of substrates to each chamber directly. Base pressure typically is 5×10^{-7} Torr. It is PC controlled, recipe driven, fully safety interlocked system with small (46"D x 44"W) footprint.



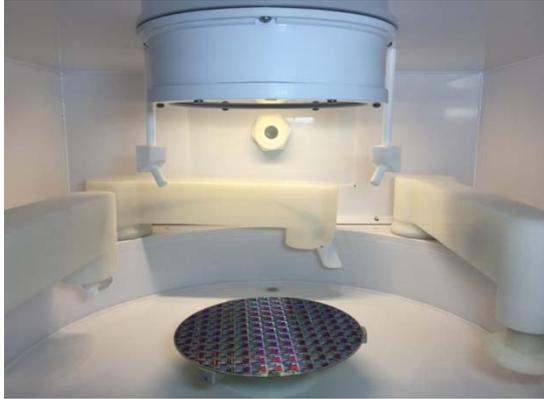
Ion Beam Etching System

NANO-MASTER has extended its Ion Beam Milling capability and it is producing RIBE (Reactive Ion Beam Etching) Systems in order to provide higher rate anisotropic etching metals, compound semiconductors and dielectrics. NANO-MASTER is able to offer both Ion Beam Milling and Etching in the same chamber at a cost below a typical Ion Beam Milling System. These are fully automated systems that are ideally suited for surface cleaning to deep trench etching. NANO-MASTER offers table top units to stand alone systems with auto load and unload, substrate tilt, rotate and cooling capabilities.



Single Wafer Cleaners

The SWC Single Wafer Cleaner and LSC Large Substrate Cleaner use NANO-MASTER's patented damage free megasonic cleaning technology in conjunction with chemical dispense capability to remove particles on wafers, masks or diced chips on wafer frames. Maximum substrate size for SWC system is 12" wafer or 7"x7" square substrates and the LSC system can process 450 mm wafers, 9"x9" masks or up to 15"x15" display panels. Both SWC and LSC tools use spin drying with heated N2 or IPA allowing "Dry-In-Dry-Out" one step processing. The process times for NANO-MASTER cleaners can vary between 3-5 minutes per substrate depending on the substrate size and cleaning options used. These systems are fully automated, recipe driven and come with array of options: PVA Brush, High Pressure DI, Piranha Cleaning IR Heating, Ozonated DI Water, CO2 Snow Clean, Hydrogenated DI Water, CO2 DIW Ionizer, and Robotic Load and Unload.



E-Beam Evaporation System

NANO-MASTER Electron Beam Evaporation System is available in single and dual source configuration enabling sequential and co-evaporation. Each e-beam source can be configured as a single or multi-pocket source with varying pocket sizes. The system is fully automated includes up to 10kV source power supply, user programmable sweep control, individual substrate and source shutters, thickness monitor, auto source pocket indexer, and rotating substrate holder. The heated or cooled or tilted substrate holders, RF or DC magnetron sputtering sources, thermal evaporation sources, and auto load/unload capability are available as options.

