PROCESS SOLUTIONS, EQUIPMENT AND SERVICES

UltraCoat™

Automated Silane Monolayer Vapor Deposition System

The YES UltraCoat™ system provides automated wafer handling and process solutions for silane monolayer deposition applications.

APPLICATIONS

- Apply ultra-thin, conformal, monolayer coatings of chemical adhesion-promoters
- Precisely control surface hydrophobicity for MEMS device and micro LED anti-stiction solutions
- Provide highly uniform acrylate or epoxy-type adhesive coatings and interface layers for optical and AR/VR applications
- For nanoimprint lithography (NIL) applications, apply anti-adhesion coatings to prolong stamping tool lifetimes
- In Life Sciences, apply silane surface monolayers for stable, covalent linkage between solid substrates and biomolecules, including DNA and proteins
- Thin self-assembled monolayer (SAM) coating for selective deposition in semiconductor applications

KEY FEATURES

- Options for single process module two load port EFEM, or two process module four load port EFEM
- Large capacity chamber fits up to fifty 200 mm or 300 mm wafers
- Coating temperatures up to 250˚C with ≤1.5% temp uniformity and multi-zone control
- Up to 5 vaporization lines with precision mass flow and thermal control
- Remote downstream plasma generator produces reactive atomic oxygen species for removal of organic residues from the chamber

BENEFITS

- Low pressure process reduces need for high operating temperatures that cause wafer warp and damage
- Superior chemical deposition uniformity; contact angle control within +/- 3 degrees
- Compatible with large selection of organosilanes including amino, epoxy, alkyl and chloro-silanes
- Integrated plasma chamber cleaning process helps maintain run-to-run process uniformity
- Eco-friendly, with significantly less chemical/solvent usage than wet chemical processes

Yield Engineering Systems, Inc.

Call: **1-510-954-6889** (worldwide) or **1-888-YES-3637** (US toll free)

www.yieldengineering.com

UltraCoat™
SPECIFICATIONS

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HARDWARE	
Integral EFEM	Class 1 (ISO 3) EFEM Module with 2 (two) Load ports Interchangeable capability for handling 200mm and 300mm wafers Capability to wafer map FOUPs & PM rack for cross slotting & double slot protection
Wafer Size	Configurable for 200 or 300 mm wafers
Capacity	50 wafers per process module, 200 mm or 300 mm
Vapor Delivery	Up to 5 vaporization lines with precision mass flow and thermal control
Chamber Material	316L stainless steel
Process Gas Inputs	2 standard (3 optional), pre-heated
Integrated Plasma	13.56 MHz
SOFTWARE	
Operating System	Windows-based recipe management, SECS/GEM compliant. Compliant with SEMI standards: E30, E39, E40, E87, E90, E94
PERFORMANCE	
Environmental Cleanliness	Class 1 (ISO 3)
Operating Temperature Range	50-250˚C
Temperature Uniformity	± 1.5% after stabilization
Chamber Pressure Control	200 mT to 100 T
Chemical Usage	Typical process 1 – 10 mL
Up-time	>95%

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