

## Novyka® Family Surface Treatment Systems

### Surface Engineering in High Performance Semiconductor Fabrication



Novyka® family surface treatment systems provide unique solutions for critical surface and interface control, including damage free surface clean, selective surface treatment, and precise materials modification.

As part of Atomic Surface Engineering™ product portfolio, Novyka™ family surface treatment technologies address specific process integration requirements across advanced lithography, etch, clean, thin film and diffusion unit processes, and enable memory and logic semiconductor device scaling and specialty semiconductor device manufacturing.

#### Product Features and Advantages

##### Technology Versatility

- Vacuum-based surface clean, surface treatment and materials modification
- Proprietary inorganic and organic precursors
- Chemical and radical based processes for low temperature, damage free surface clean and surface treatment
- Precise ion energy tuning for depth control in materials modification

##### Engineering Capability

- High productivity system architecture
  - Twin-wafer vacuum chamber
  - Multi-chamber platform
- Inductively coupled plasma (ICP) source with patented fully grounded Faraday shield design
  - Radical source suitable for oxidation, reducing, water, halogen and organic chemistries
  - Ion source with wide range ion energy tunability

#### Product Applications

##### Logic/Memory

- Critical surface clean
- Surface smoothing
- Selective silicon surface oxidation
- Selective silicon nitride surface oxidation
- Metal surface corrosion protection
- Surface hydrophilic treatment
- Surface hydrophobic treatment
- BARC and photoresist coating preparation
- Silicon surface native oxide growth suppression
- Dielectrics surface passivation
- Low k materials restoration
- Metal nitride surface treatment
- Precision energy silicon nitridation

##### Power/Analog IC

- Silicon surface passivation
- Silicon oxide surface protection
- Silicon nitride surface protection
- Photoresist coating preparation