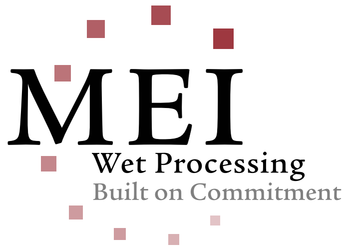
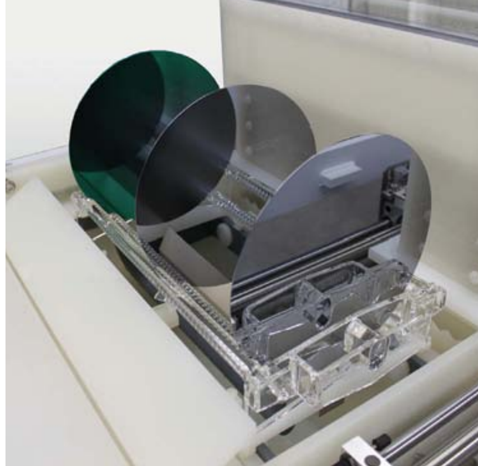


Integrated Dryers

Genesis & Genesis X Marangoni Dryers & Vapor Dry IPS Dryer



Integrated Dryer Solutions

Low Cost Marangoni Dryers, Efficient IPS Vapor Dryer

MEI integrates drying with cleaning and rinsing, providing a one-step process for applications including the fabrication and cleaning of ICs, solar cells, fuel cells, and MEMS.

The Right Dryer for Each Process

- Static or active wafer handling
- Teflon cassettes or low mass wafer carriers
- Substrates are free of water marks after drying
- Dryer designs specifically targeted to provide performance matching our customer needs
- FEOL and BEOL wafer drying
- Optional chemical injection of: Ozone, HCL & HF
- Typical cycle times 7–20 Min
- Dries phobic or philic surfaces

Marangoni Drying

Improve Yield, Reduce Particles

MEI's integrated Marangoni dryer can reduce particle adders with:

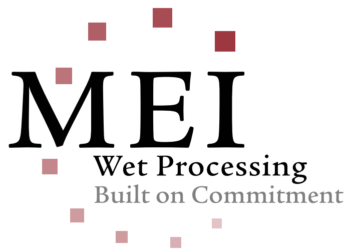
- Less nitrogen consumption
- More robust performance
- Eliminates operator handling of wet wafers
- Enables chemical oxide cleans before dry with no air interface

Vapor Drying

For 3D Compound Semiconductor and TSV Applications

MEI's IPA Vapor Dryer displaces water from high aspect ratio features and TSV completely drying complex surfaces

- Lower IPA usage compared to boiling sump vapor dryers
  - 200ml/cycle
- Completely dry "High Aspect Ratio" structures and TSV > 750um deep



MEI Wet Processing Systems & Services, LLC
3838 Western Way NE
Albany, OR 97321

Phone 1-541-917-3626

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Marangoni Dryers

Robust, Efficient, Clean and Cost Effective

Varying Dryer Designs to Match Varying Industry Needs

- Integrated DI water filtration option
- Continuous IPA recirculation for reduced IPA usage
- Low cost of ownership

Revolution Integration

- Simplified dryer design for use with Teflon cassettes @ > 200nm w/5mm EE
- Static wafer lifter
- Hydrophobic or philic surfaces
- Particle performance < 20 @ 0.2um
- Uses Teflon cassettes
- Ideal for drying thin wafers
- Typical 7–20 min cycle time
- Will not damage photoresist

Evolution Integration

- Active lifter for independent wafer and low mass carrier drying @ 30nm w/3mm EE
- Slow pull wafer lifter
- Wafers dried independent of carrier
- Phobic or philic surfaces
- Particle performance < 20 @ 0.065um
- Uses low mass wafer carrier
- Optional IPA recirculation & filtration to 15nm
- Typical 7–10 min cycle time
- Will not damage photoresist

O_3, HF or HCl Injection for “Critical Clean” Applications

- Produces oxide free H terminated surface with no air interface
- HF injection is best used for complete oxide strip applications
- Combination HF, HCL and DIO3 rinse provides high quality surfaces
- Cycle times are application dependent

Vapor Dryers

Vapor Dry
IPA Displacement
SOLUTIONS by MEI

Low Complexity, Low IPA Use

Efficient, Clean, Small Footprint

85% Reduction in IPA Usage vs Boiling Sump Vapor Dryers

- All EP stainless steel construction
- Ideal for BEOL applications
- Particle performance < 20 at 0.12µm
- Dries wafers with high aspect ratio features or through silicon via’s
- Ideal for MEMS devices
- Fastest drying of Teflon cassettes
- Lower IPA exhaust discharge than boiling sump vapor dryers
- Robust and reliable performance
- Ideal for drying multiple wafer sizes

MEI Dryers are Managed by IDX Flexware

MEI’s Award Winning Service and Support

MEI Global Field Service Team

- Final test and verification
- Standard one year parts and labor warranty
- Two year optional warranty
- Full field service support, on-site warranty coverage
- On-site training provided