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Pura™ Wet Processing System with Flash Dry™ for Polysilicon Purity

PURA-03/12

Production Ready

As with all of our products, configurability, up time, yield, maintainability, and throughput are the hallmarks of MEI wet processing systems.

- Production ready, quality, ergonomics and safety are designed and built in
- Precise. MEI's advanced process controls provide closed loop monitoring/control using software recording
- UL listed electrical components

Pura wet processing systems are available in two configurations: Etch and FlashDry system or Etch, Rinse and FlashDry system.

World-Class Service & Support

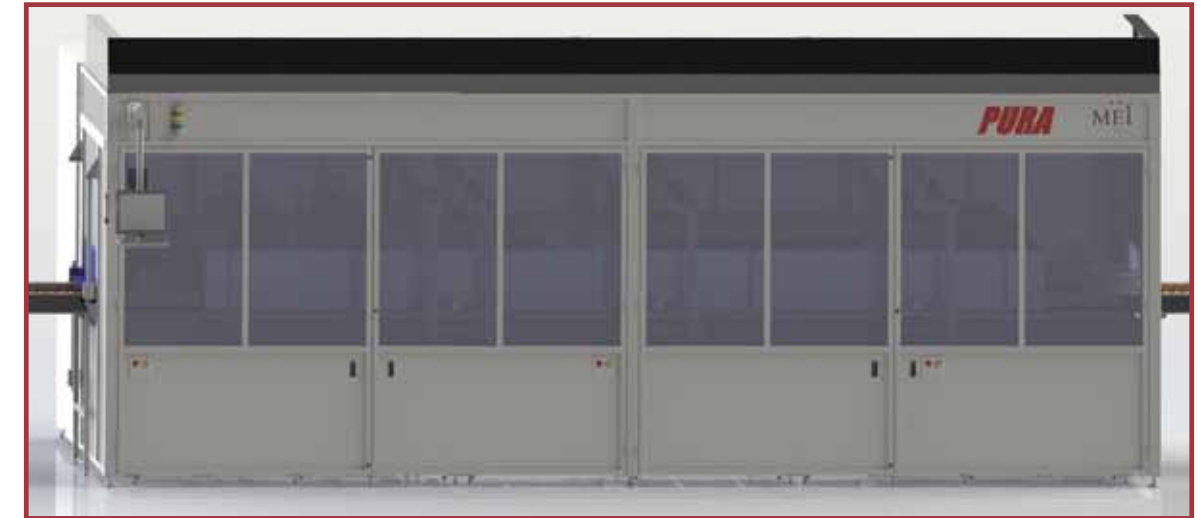
At MEI our reputation is built on our commitment to building reliable products, backed by field-proven experience. Our products are designed for safety and easy maintenance, conforming to the SEMI-S2 standard.

- Standard one-year parts and labor warranty
- Two-year optional warranty
- Full field service support and on-site warranty coverage
- Upgradable modular design

Process Software Expertise Unequaled in the Industry

For process management, MEI has no peer in the industry. MEI will model the airflow and fluid flow utilizing special CAD software for detailed design, analysis, documentation, and configuration management.

Our proprietary IDX control automation software mines process data from the Pura wet processing system, allowing the operator visibility into exactly what is occurring in any tank or chamber.



Produce Ultra-Pure Electronic Grade Polysilicon & Dry Critical Polysilicon Material

Pura™ Wet Processing System

- Etch, Rinse & Dry FAST
- Process ANY Form Factor
 - Chunks
 - Rods
 - Granular
 - Fines
 - Reclaim
- Eliminates Surface Contamination for Higher Yields with Lower Scrap
 - Metals
 - Organics
 - Oxidation
- Saves Energy & Water
 - > 70 percent savings on energy
 - 3 gpm water usage
- Reduce Floor Space by 60 Percent

FlashDry™ Cold Dry

- Dries Granular, Fines & Sand—Completely
- Dries Hidden Moisture
 - Fissures
 - Cups
 - Cracks
- Patent Pending Cold Dry Technology
 - Fast
 - No oxidation
 - Cold output—ready to handle
- Energy Efficient
 - Saves > 70 percent of energy compared to evaporative dryers
- No Detectable Moisture Measurable via Infrared Moisture Analysis

MEI customers always receive award-winning service, installation, and support.

MEI Products & Services

- Wet Process Systems for Semiconductor, Solar & MEMs
- Chemical Delivery & Handling Systems
- IDX Control Automation Software
- Used Semiconductor Systems Reconditioning
- Cleanroom Safety & Ergonomic Equipment
- Field Repair & Service

MEI Markets

- **Semiconductor**
Leader in wet processing
- **Solar**
Wafer texture & cleaning
- **Materials**
Breakthrough polysilicon finishing



MEI's Pura™ wet processing system with our new FlashDry™ cold dry process is a significant breakthrough in achieving ultra-pure, electronic grade polysilicon.

PURA™ Wet Processing System

System Overview

The Pura wet processing system is a complete closed-loop system that combines an energy- and space-efficient etch and rinse system with our new FlashDry cold dry system. FlashDry uses *no* thermal energy for drying.

MEI's Pura wet processing system is a self-cleaning, in-line, configurable, automated, linear batch system made for high throughput at low cost. Pura is designed for dry-in and dry-out polysilicon processing.

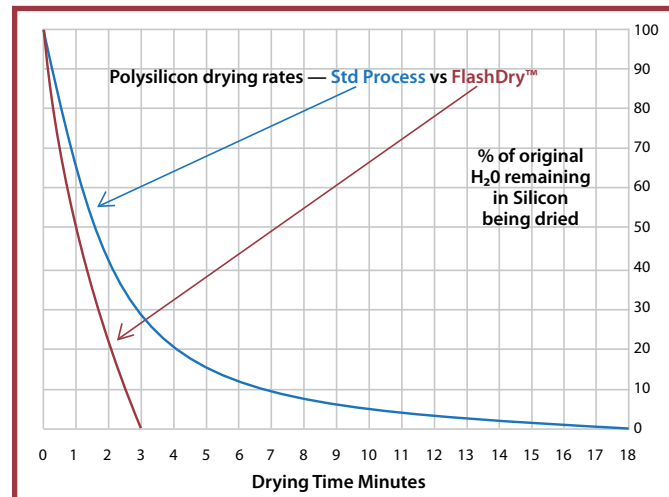


- Good etch uniformity
- Reduces metallic contamination
- Removes organic contamination

- Excellent dust and powder removal
- Cleans rods, chunks, granular and fines
- Thorough removal of etch chemistry

- Dries hidden moisture in cups, fissures and cracks
- Cold drying process
- No residual moisture
- Doesn't cause postdry condensation and oxidation

High Speed Evaporation/Vacuum Dry



Handles All Types of Materials



Removes Surface Contamination



Dries Fines Completely (3 L from 5 Kg)



Integrated Wet Processing

- Dry In—Dry Out
- Modular configuration is fully enclosed and exhausted with optional positive pressure mini-environment
- Etch and clean systems for polysilicon rods, chunks, and fines from 200 microns
- Tank materials are designed for specific customer applications (PVDF, stainless, quartz, Halar, and more)
- Chemical spiking, DI reclaim, concentration monitoring, recirculation, filter, fill, agitation, and flush options

Maintenance Friendly

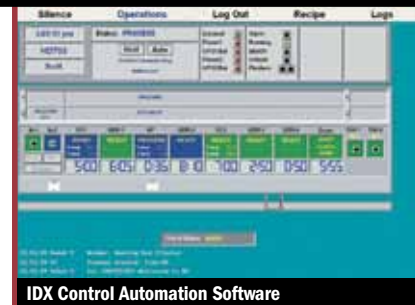
- Self-cleaning etch and rinse tanks, with removable filters, eliminating shut down due to fines and particles
- Thoughtful design includes easy access to all major component areas, and uses OEM off-the shelf components
- Semi-automated sequences for drain, flush, and fill
- Ability to manually control robot, on/off of individual valves, pumps, and other devices

Reliability

- Reliable, field-proven robotics and controls
- Nitrogen purged electrical compartments
- Maintenance friendly
- Durable OEM components

Safety Features

- Unique shell design to prevent fume leaks; computer-modeled exhaust flow, with separate exhaust controls for plumbing and plenum
- IDX software collects process data from the Pura wet processing system, allowing operator visibility
- Interlocks with EPO buttons & exhaust pressure sensors
- Fully tested before shipping with DI water and to customer requirements



IDX Control Automation Software

Self-cleaning tank — Dirty/Clean

Easy to remove filter for fines and particles

Rods

Chunks

Fines