Mask/Reticle Cleaning Systems

NANO-MASTER, Inc.

3019 Alvin Devane Blvd., Suite 300,
Austin, Texas 78741
Ph. 512-385-4552; Fax 512-385-4900
main@nanomaster.com; www.nanomaster.com

LSC-5000 Mask/Reticle Cleaning System

The LSC-5000 is a state of the art auto load-unload reticle cleaning system. Featuring a low profile robot integrated with a SMIF pod opener and a barcode reader, the LSC-5000 can handle and clean 6" reticle in an ISO Class 1 environment while keeping footprint to a minimum as compared with other robotic cleaning systems. The standard cleaning capabilities include megasonic DIW dispense, independent chemical dispenses, and a PVA brush. A novel design integrates a megasonic transducer nozzle in the center of a PVA brush to further extend cleaning capabilities by optionally combining the acoustic energy with physical brushing. In addition to cleaning, this process keeps the PVA brush free of particle buildup, extending its lifetime and ensuring consistent cleaning performance. System control is computer based, providing a fully automated, flexible platform for recipe editing, modification and storage. Datalogging capabilities facilitate process analysis and debugging. Multiple levels of password protected access allow for a safe operation of the system giving operators controls ranging from full editing privileges to simple run-stop recipe operation.

The LSC-5000 platform also allows for the unique capability of cleaning both sides of pelliclized reticles. Using a specially designed chuck and a pellicle protection cup, the LSC-5000 can clean and dry the back side of a reticle, then flip it and mount the protection cup. A linear motion arm with an extra brush and Megasonic nozzle then scans across the front side to clean the sides of the reticle. This unique technology can extend reticle lifetime by reducing the need of pellicle removal and re-application.

Other system options include chemical bulk fill, Ozonated DIW, High pressure DIW dispense, SPM (piranha) dispense, and DIW heating (up to 70ºC). Clustering and multi-reticle cassette interfaces are also available.

The LSC-5000 provides the latest in photomask cleaning technology with a low capital investment and cost of ownership. With its conservative footprint, it is the best choice for your photolithography bay.

LSC-5000 Mask/Reticle Cleaning System

FEATURES:

- Two Dual Dispense Arms:
  - Linear Arm Provides Uniform Cleaning of Front Side Alignment Marks for Pelliclized Reticles
  - Radial Arm Provides Uniform Dispense of DIW with Megasonic Energy for Back Side Cleaning
- Pelliclized Reticle Clean: Reticle is mounted face down on the chuck and the back side is cleaned with the radial arm. Reticle is then dried, picked up and flipped. The pellicle protection cup is then mounted onto the front side and the alignment marks are then cleaned with the megasonic nozzle, brush and chemical dispense from the linear drive arm. Chuck is then rotated 180° and other side is cleaned. The reticle is then dried and the protection cup removed. All of the manipulation is automatically done by the robot
- Megasonic Clean
- Chemical Dispense
- SC1 Clean
- Brush Clean with Megasonic DI Water Dispense through the Brush
- Brush Self Clean with Megasonic DI Water
- Dual Drain
- N_2/IR Lamp Dry
- Fully Automated with Touchscreen Interface
- Robotic Handling and Transfer from SMIF Pod
- Automatic Bar Code Reader
- Data/Error Logging
- CO_2 Injector with DI Water Resistivity Measurement
- Class 1 Cleanroom Compatible
- Footprint: 59”x45”

OPTIONS:

- Ozonated DI Water Clean*
- Bulkfill for Auto Mixing SC1
- SC2 Clean
- Piranha Clean*
- High Pressure DI Water*
- Heated DI Water
- Heated Chemicals
- Up to 9”x9” Reticle Clean
- 21”OD, 15”x15” Large Substrate Clean

* For Unpelliclized Reticles Only

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GENERAL SPECIFICATIONS:

Reticle Size:	6”
Interface type:	SMIF pod RSP150 / RSP200
Typical Clean Time:	5 minutes per side
Megasonic Frequency:	1 or 3 MHz
RF Power Supply Maximum Output:	60 Watts
Minimum DI Water Flow:	1.5 liters / minute
System Control:	PC Controlled with LabVIEW and Touchscreen User Interface
Process Chamber:	CPVC chamber with HEPA filter and blower
Loading and Unloading:	Fortrend G4 plus robot with SMIF pod opening, automated load-unload and flip. Class 1 environment
Cleaning Arm:	Integrated PVA planar brush with megasonic nozzle and chemical dispense. Configuration allows for self-cleaning of brush
Pelliclized Reticle Cleaning (Option):	Linear arm with extra brush and megasonic nozzles and pellicle protection cup for cleaning front side of reticle
Other Options:	Chemical Bulkfill, Ozonated DIW, DIW Heater (70°C), SPM (Piranha) Dispense, High Pressure DIW (>1000psi)

LSC-5000 SOFTWARE:

- Password protected access levels
- Extremely easy to create, save, load and run recipes
- Continuous monitoring of safety interlocks
- Logs all important process information
- Automated robotic loading/unloading of reticle
- Automatic chemical bulk filling and chemical age tracking
- Reads reticle barcodes and saves them to disk

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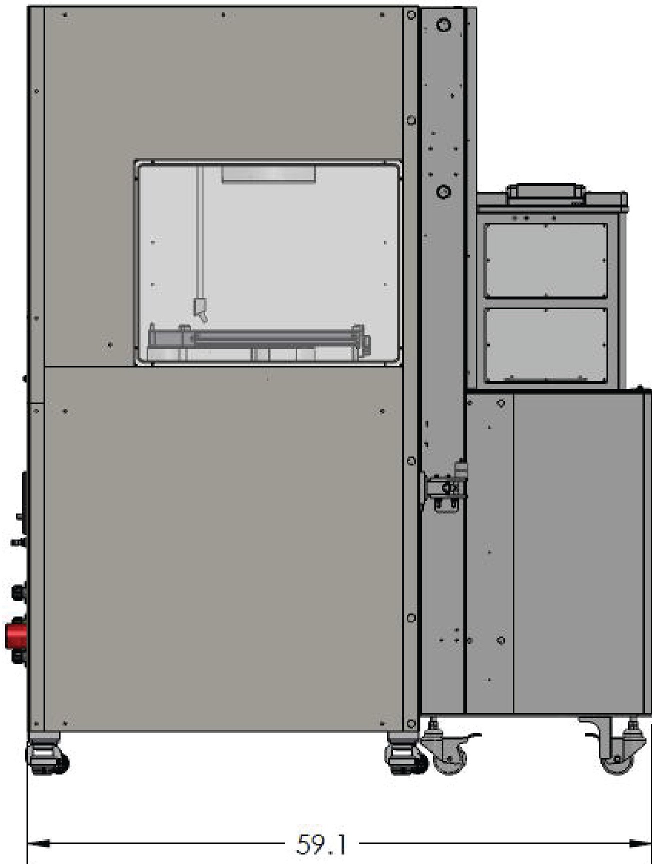

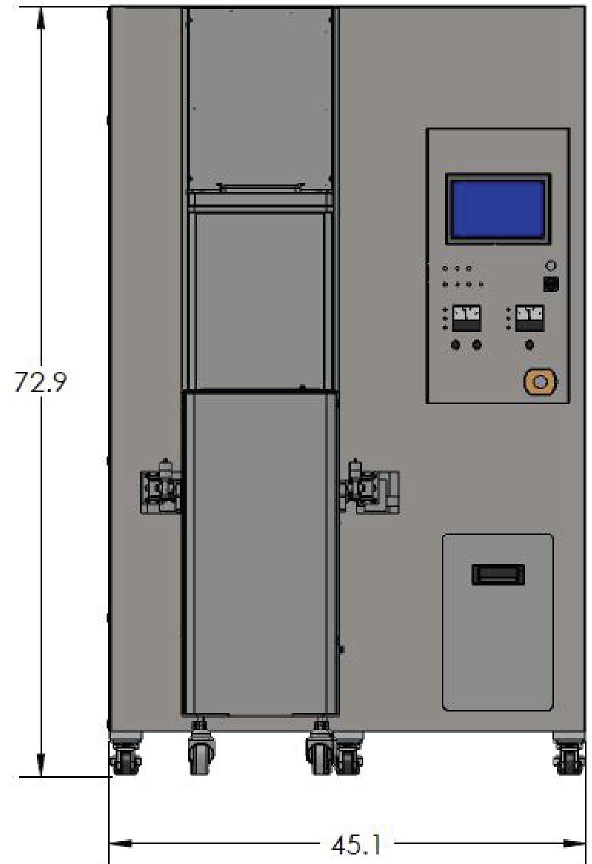

FACILITY REQUIREMENTS

Power Input:	208V, 50/60Hz, 20A/phase
Chilled Water:	(2X) 3/8" Swagelok, H_2O Supply & H_2O Return
Compressed Air:	1/4" Swagelok, 80-90 PSI
Processed Gas:	1/4" Swagelok, 20 PSIG
Nitrogen:	1/4" Swagelok, 10 PSIG
Exhaust (System):	NW25

DIMENSIONS	Width	Depth	Height
LSC-5000	45"	59"	73"

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