



Plasma Asher Descum

ALLWIN21 CORP.



AW-105R

Introduction

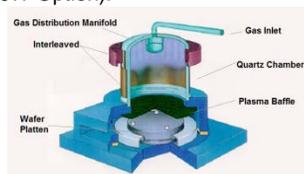
The AW-105R single-wafer photoresist asher and descum is an automated tool designed as a flexible 13.56MHz RF Parallel Plate plasma photoresist removal and descum system for high-volume wafer fabrication. The AW-105R is in direct response to manufacturer's concerns for wafer uniformity, uptime, reliability and production-proven technology.

AW-105R Key Features

- ⊕ Production-proven plasma Asher/Descum system.
- ⊕ Integrated solid robotic wafer handling, Single wafer process.
- ⊕ Up to 3%-5% Uniformity. Best for III-V Materials.
- ⊕ Frontside and backside isotropic removal.
- ⊕ Consistent wafer-to-wafer process cycle repeatability.
- ⊕ Element heating for up to 250°C.
- ⊕ 50mm-150mm wafer capability. Up to 6.25" substrate.
- ⊕ Up to 4 wafer size capability without hardware change.
- ⊕ Fixed cassette station and wafer aligner/cooling station.
- ⊕ Can handle 50um thickness wafer.
- ⊕ PC controller with Advanced Allwin21 Software.
- ⊕ Endpoint detection (EOP) with Allwin21 SLOPE technology (Optional).
- ⊕ Up to 3 gas lines with MFC.
- ⊕ Air-Cooled 600W MKS 13.56 MHz RF Generator (300W Option).
- ⊕ Pressure control with Throttle Valve.
- ⊕ 15-inch Touch screen monitor GUI.
- ⊕ EMO, Interlocks, and Watchdog function.
- ⊕ GEM/SECS II (optional).
- ⊕ Small Footprint: 27"W x 40"D x 59"H (280LBs)
- ⊕ Made in U.S.A.



Integrated Robust Solid Robot



Production-proven Reactor

AW-105R Applications

- ▶ GaAs, InP, GaN, SiC wafer Strip (Mainly)
- ▶ GaAs, InP, GaN, SiC wafer Descum (Mainly)
- ▶ Thin Film Head Resist Cleaning
- ▶ Opto-Electronic Devices Cleaning
- ▶ MEMS
- ▶ Photoresist Stripping
 - High dose implant (As⁺, B⁺, P⁺)
 - Rework
 - Post-polysilicon
 - Post-metal
 - Post-oxide
- ▶ Controlled Resist Removal
 - Post-develop descum
 - Uniformity capability (<5% 1σ)



AW-105R Software Key Features

- Real time graphics display, process data acquisition, and analysis.
- Closed-loop process parameters control.
- Precise parameters profiles tailored to suit specific process requirements.
- Programmable comprehensive calibration of all subsystems from within the software. This allows faster, easier calibration, leading to enhanced process results.
- Recipe creation to ensure process repeatability. It features a recipe editor to create and edit recipes to fully automate the processing of wafers inside the process chamber.
- Validation of the recipe so improper control sequences will be revealed.
- Storage of multiple recipes, process data, and calibration files so that process & calibration results can be maintained or compared over time.
- Passwords provide security for the system, recipe editing, diagnostics, calibration, and setup functions.
- Simple and easy to use menu screen which allow a process cycle to be easily defined and executed.
- Troubleshooting features which allows engineers and service personnel to activate individual subassemblies and functions. More I/O and AD/DA "exposure".
- DB-25F parallel (printer) port. The computer interfaces to the Allwin21 system with only one cable: the control interface cable.
- The control board inside the machine that translates the computer commands to control the machine has a watchdog timer. If this board loses communication with the control software, it will shut down all processes and halt the system until communication is restored.
- GEM/SECS II function (Optional).
- Advanced Allwin21 End of Process (EOP) function (Optional)

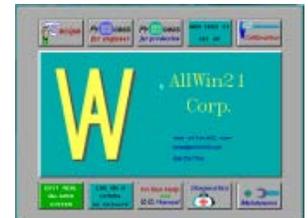
AW-105R Specifications*

- ❖ Wafer Size: Up to 6.25 inch.
- ❖ Temperature: 60-250°C (±2°C)
- ❖ Gas Lines: Up to three gas lines with MFCs.
Typical MFC configuration: 5 SLM O2 and 500 SCCM N2.
- ❖ Asher Rate: 0.5-1.5 um/min at 200 to 250 °C, bulk strip; 600 A/min at 100 °C, Descum
- ❖ Uniformity: <±8% (Max-Min) Strip; <±5% (Max-Min) Descum
- ❖ Particulate: <0.05 /cm² (0.03um or greater)
- ❖ Damage: CV:<0.1V from control; Mobile Ion:<1-2 E10 ; Vt :0% total shift on 98% of points tested no shift >5%
- ❖ Selectivity: >1000:1
- ❖ MTBF/MTTA/MTTR: 450 Hours/100 Hours/3.5 Hours or Better.
- ❖ 95% uptime

*Contact Allwin21 sales for other applications and specifications

AW-105R Configuration

- Main Frame with Circuit Breakers, Solenoid Valves
- Pentium Class PC with AW Software
- Keyboard, Mouse, USB SW backup, and Cables
- Chuck /w Heat, Pump Ring ,Lift Pins
① 2-4 inch; ② 2-6 inch; ③ 4-6 inch; ④ 6.125 inch; ⑤ 6.25 inch
- Center Aligner and Cassette Station
① Two Dimensions ② Four Dimensions
- Anodized Reactor with Door
- Chamber Base plate with water sensor
- Base Plate and Reactor Ceramic Ring
- Base Plate and Chuck Ceramic Ring
- Upper and Lower Electrodes
- Quartz showerhead & Diffusion Disk
- Main Control and Distribution PCBs
- 3-axis Integrated Robust Solid Robot
- RF Matching Network with PCBs
- 13.56MHz RF Generator
① 300W ② 600W
- MFC /w In-line Filter and Solenoid Isolation Valve
① One MFC; ② Two MFCs; ③ Three MFCs
- AC/DC Box with Temperature Controller
- MKS Baratron with Isolation Valve
- Lamp Tower Alarm w/ Buzzer
- Throttle Valve
- Main Vacuum Valve
- Front EMO, Interlocks
- 15-inch Touch Screen GUI



Main Menu Screen

Options:

- ◆ End-of-Process (EOP)
- ◆ GEM/SECS II (Software)
- ◆ Vacuum Pump
- ◆ Chiller for Chamber Base Plate

AW-105R Facilities

- ▶ Plumbed Process Gases: O2 N2
- ▶ Cooling water: 1GPM house circulating supply @ <23 ± 2°C
- ▶ Facility Exhaust: 100 CFM @ 1" static pressure
- ▶ Vacuum supply for Robot: 11.8"Hg(-5.8psi) / 0.1CFM airflow
- ▶ Power: 190-240VAC, single phase, 30A, 50/60Hz (NEMA L-6-30P plug supplied)