



# Company Introduction and Main Products

## ALLWIN21 CORP.

### Allwin21 Overview

**Allwin21 Corp.** is the exclusive licensed manufacturer of **AG Associates Heatpulse 610** Rapid Thermal Process tool. We are manufacturing the new AccuThermo AW Series Atmospheric and Vacuum Rapid Thermal Processors. Compared with traditional RTP systems, Allwin21's AccuThermo AW RTPs have innovative software and more advanced real time temperature control technologies to achieve the BEST rapid thermal processing performance (repeatability, uniformity, and stability) with decades of research directly applicable to ours.

We focus on extending product lifecycle, providing solutions, and engineering enhancements to many production proven semiconductor process equipment most directly related to III-V processing. These semiconductor equipment have been used in production and R&D since the 1990's. They have proven processes and research. Allwin21 Corp. can customize these systems with Allwin21's comparable integrated process control system with PC, solid robotic wafer transfer system, and new critical components. This is to achieve the goal of giving our customers a production edge, with right cost, and without having to worry about obsolete parts.

Allwin21 Corp. was formed in 2000 with a focus on professionally providing **Rapid Thermal Process, Plasma Asher Strip / Descum, Plasma Etch/RIE, Sputter Deposition** and **Metal Film Metrology** high-tech semiconductor equipment, services and technical support in Semiconductor III-V, MEMS, Biomedical, Nanotechnology, Solar, Battery & LED industries. We endeavor to be a leader in our product lines. To achieve this, we have been providing unique innovative and cost-effective technical solutions, high quality equipment, and on time spare parts delivery worldwide. We have maintained a global presence that has grown and expanded into the major high-tech manufacturing areas of the world. We pride ourselves on developing and continuing lasting customer relationships.

We understand that a timely responsive support and service are critical elements in semiconductor industries. Allwin21's experienced engineer team is the best guarantee for high quality service and support. We provide on-site installation, training, maintenance, system optimization, retrofits, and/or customized upgrades

### What sets us apart from the competition...

- 1) Exclusive licensed manufacturer of Heatpulse 610 of AG Associates.
- 2) Advanced Allwin21 Real Time PC Control Technology.
- 3) Focus on Production-Proven process technology.
- 4) Integrated 3-axis solid robotic wafer transfer technology.
- 5) Experienced local engineer support.
- 6) Products made in U.S.A



#### 1) Rapid Thermal Process

- **AccuThermo AW 610M**
- AccuThermo AW 820M
- AccuThermo AW 820V
- **AccuThermo AW820R**



#### 2) Sputter Deposition

- **AccuSputter AW 4450**



#### 3) Plasma Asher Descum

- **AW-105R**
- AW-1008
- AW-B3000



#### 4) Plasma Etch/RIE

- AW-901eR
- AW-903eR
- AW-2001R

#### 5) Upgraded Kit for:

- Heatpulse® 210,310,410,610
- Matrix® X0X
- Tegal® 90Xe
- Gasonics® Aura 1000/2000LL/3000/3010
- Gasonics® AE 2001/2000LL
- Gasonics® L3510/L3500
- Perkin-Elmer 24XX,4XXX Sputter
- MRC 6XX, 9XX Sputter
- TES 6XX,9XX Sputter
- Branson/IPC® 3000/2000/4000
- Lam AutoEtch® 490/590/69
- Lam Rainbow® 4XXX Series



#### 6) Sheet Resistance Measurement

- AWgage-150
- AWgage-200





**RFQ for Fast Free Quotation**

## AccuSputter AW 4450

### Introduction

Allwin21 Corp. has been focusing on providing solutions and enhancements to Perkin-Elmer 4400, Perkin-Elmer 4410, Perkin-Elmer 4450, Perkin-Elmer 4480 used sputter deposition semiconductor process equipment. These OEM semiconductor equipment have been used in productions and R&D since 1990's. They have been proven to be a true "work horse". Allwin21 Corp. can customize these OEM systems with Allwin21's comparable integrated process control system with PC and new critical components. We rebuild AccuSputter AW 4450 Series Sputter Deposition systems with our own integrated process control system, giving our customers the tools to achieve a production edge at very low cost impact.

### AccuSputter AW 4450 Key Features

- ⊕ Production-proven sputter technology
- ⊕ Optimum AW-4450 System Control
- ⊕ DC 24V for Motors, Actuator, Relay, Solenoid
- ⊕ Efficient 8" Delta cathodes, 2 to 6" option
- ⊕ Full Pallet rotation control with "indexing"
- ⊕ High Uniformity and Yield
- ⊕ DC, RF Sputter, Pulse DC option
- ⊕ Magnetron and Diode Sputter option
- ⊕ RF Etch and Bias are optional
- ⊕ Ultra Clean vacuum system
- ⊕ Load lock operation
- ⊕ UHV design
- ⊕ Flexible for development or production use
- ⊕ Full range of substrate sizes and shapes
- ⊕ Various pumping and power options
- ⊕ Co-sputtering option
- ⊕ Reactive Sputtering option

### AccuSputter 4450 Sputter Materials

Al+W	Cr/SiO <sub>2</sub>	SiC	Ti+Au
InSnO	SiO <sub>2</sub>	Ti/W	Ti+Au+Ni
Al <sub>2</sub> O <sub>3</sub>	Mo	SiO <sub>2</sub> +O <sub>2</sub>	Ni/Fe+Cu+SiO <sub>2</sub>
Ag	MoSi <sub>2</sub>	Si+N <sub>2</sub> (Si <sub>3</sub> N <sub>4</sub> )	Ti/W+Au
Au	Mo <sub>2</sub> Si <sub>5</sub>	Si+N <sub>2</sub> +B <sub>4</sub> C	Ti/W+Au+Ta
C	Mo <sub>5</sub> Si <sub>3</sub>	Ta	Ti/W+Al/Si
Cr	Ni	TaC	Ti/W+Ni/Cr+Au
Cr/Co	Ni/Cr	Ta+Au	Ti/W+Pt
Cr/Au	Ni+Ni/Cr	TaSi <sub>2</sub>	Al+Ti/W+Ag
Cr+Cu	Ni/Fe	Ta+SiO <sub>2</sub>	W+Al <sub>2</sub> O <sub>3</sub>
Cr/Si	Pt	Zr	Zn
Cr/SiO	TiO <sub>2</sub>	TiO <sub>2</sub> +Cr	ZnO <sub>2</sub>

### AccuSputter AW 4450 Software Key Features

- Maintenance, Manual, Semi Automatic and Fully Automatic modes.
- Automated calibration of all subsystems.
- Troubleshooting to subassembly levels.
- Programmed comprehensive calibration and diagnostic functions.
- Recipe creation for full automatic wafer processing.
- Automatic decline of improper recipes and process data inputs.
- Multi-level password protection.
- Storage of multiple recipes and system functions.
- Real-Time process graphics, data acquisition display, and analysis.
- Process Data and Recipe storage automatically to hard drive.
- Easy TC vacuum gauge calibration.
- Positioning Deposition (optional)
- GEM/SECS II (optional)



Production-Proven Chamber/Load lock/Vacuum

### Options

- ◆ GEM/SECS II function (Software)
- ◆ More gas lines with MFC
  - ① N<sub>2</sub>; ② O<sub>2</sub>; ③ Customized
- ◆ Lamp tower alarm with buzzer.
- ◆ Mechanical pump or dry pump for process chamber and load lock.
- ◆ Independent mechanical pump or dry pump for process chamber.
- ◆ Chiller for Cooling plates and table.
- ◆ Turbo pump for load lock.
- ◆ Load lock Lamp Heating function, Up to 200°C
- ◆ Chamber Lamp Heating function, Up to 300°C (Use one cathode port in SST chamber top plate).
- ◆ Plasma etch function (before sputter)
- ◆ Bias function
- ◆ Co-sputter function
- ◆ Reactive sputter function
- ◆ Transformer for AC 380V to 208V for DC Power Supply (if necessary).

### AccuSputter AW 4450 Basic Configuration

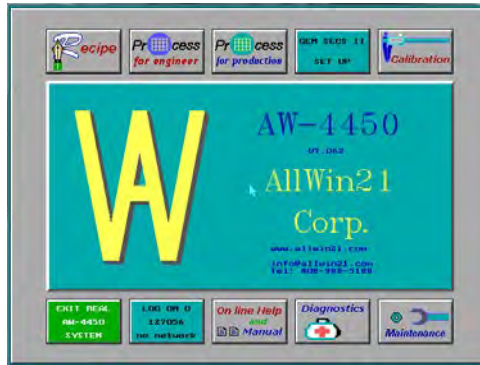
- Main Frame
- 28" dia. SST chamber top plate with ports and Cathodes
 

Configuration	I	II
Cathode Shape	Circle	Delta
Cathode Size	8 inch	Delta
Cathode Quantity	1 to 4	1 to 3
- Sputter Power Supply
 

Configuration	I	II	III
DC Power	5 KW	10 KW	
RF Power	1KW	2 KW	3 KW
Pulse DC Power	5 KW	10 KW	
- Process Chamber
  - 8" diameter X 12" high stainless steel cylinder with 6"
  - CF flange viewport and load lock port
  - 28" diameter stainless steel base plate
  - 1 1/2" air-operated roughing isolation valve
  - Air-operated gas inlet valve
  - Air-operated vent valve
  - 1 1/2" blanked-off leak check port
  - Removable deposition shields
  - 23" diameter, 3-position water-cooled annular substrate table with variable-speed motorized table drive
  - Full circle shutter and vane shutter
  - Chain drive pallet carrier transport
  - Heavy duty electric hoist
- Load lock
  - 30" x 28" x 8" stainless steel load lock chamber with aluminum cover
  - Chain drive pallet carrier transport
  - 2" air-operated roughing isolation valve
  - Air-operated vent valve
  - 23" diameter molybdenum annular substrate pallet
  - Elevator for pallet up and down function.
- Vacuum Systems for process Chamber
  - 2 stage Cryo pump with 1000 l/s pumping speed for air, including chevron, water-cooled compressor and lines, automatic regeneration controller and plumbing kit. 71/2" O.D. (6" ASA) aluminum air-operated gate valve Air-operated venetian blind throttling valve.
  - 36.7 cfm mechanical pump or dry pump for process chamber and load lock (Optional)
- 1 gas line with MFC
  - ① Ar, 200 SCCM; ② Customized
- New Controller: Allwin21 Corp.'s AW-4450 System PC Control
- New Power Distribution Box: AC380V /208V/ 3Phase

# AW Sputter Deposition System ALLWIN21 CORP.

Upgrade Your Perkin-Elmer 2400,44XX Series Sputter Deposition Systems



- ✓ Increase Uptime
- ✓ Decrease Maintenance

- ✓ Lowest Cost Upgrade Solution
- ✓ No More Obsolete Controller Parts

**RFQ for Fast Free Quotation**

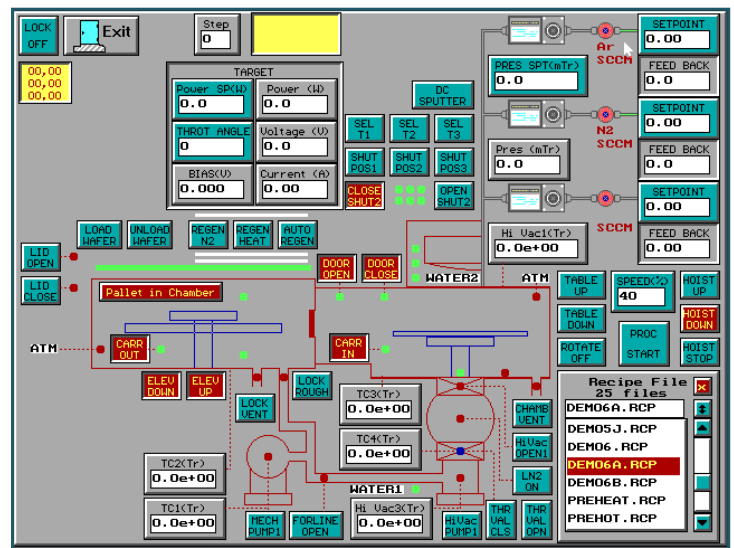
The AW-4450 Sputter System Upgrade Kit includes an advanced control system with touch screen operator interface and Allwin21 computer software. The kit is easy to incorporate (plug-and-play) into the original PE sputter system. No need to move the to be upgraded system from its present location. All utility connections stay in place. The new control system will enhance the entire system operation. It makes the upgraded sputter system much more reliable, since many of the old controllers are eliminated.

## AW-4450 System Control

- ✓ Maintenance, Manual, Semi Automatic and Full Automatic operation modes
- ✓ Automated calibration of all subsystems
- ✓ Trouble shooting to sub-assembly levels
- ✓ Programmed comprehensive calibration and diagnostic functions
- ✓ Recipe creation for full automatic wafer processing
- ✓ Automatic decline of improper recipes and process data
- ✓ Multi level password protections
- ✓ Storage of multiple recipes and system functions
- ✓ Real-Time process data acquisition,display ,analysis
- ✓ Real-Time graphics user display (GUI)
- ✓ Process Data and Recipe storage on a hard drive
- ✓ Easy TC vacuum gauge calibration
- ✓ Positioning Deposition(optional)
- ✓ GEM/SEC II functions (optional)

## Fast On-site Upgrading

- ✓ Customized survey and upgrading plan
- ✓ Same input/output connectors
- ✓ Same definition of each connector
- ✓ Plug-and-Play



## Replaced Obsolete Controls If Necessary

- ✗ Auto Pump Down Controller
- ✗ Load Lock Controller
- ✗ Digital Clock Timer
- ✗ Table Raise / Lower Control
- ✗ Throttle Valve Control System
- ✗ Pressure Control System
- ✗ Sputter Head Controls (optional)

Perkin-Elmer 44XX Series Sputter Systems : ▶ PE 2400 ▶ PE 4400 ▶ PE 4410 ▶ PE 4415 ▶ PE 4430 ▶ PE 4450 ▶ PE 4480

Tel.: 408-778-7788

E-mail: sales@allwin21.com

Website: www.allwin21.com

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Address:220 Cochrane Circle, Morgan Hill,CA95037

# AW Sputter Deposition System

## ALLWIN21 CORP.

### Comparison between New AW 4450 AccuSputter and AW Refurbished / AW Upgraded / Original PE 44XX Series systems

Comparing Item	AccuSputter AW 4450	AW Refurbished&Upgraded PE 44XX	AW Upgraded PE 44XX	Original PE 44XX
Controller	Allwin21 Corp.'s AW-4450 System Control			Obsolete Control Parts
Monitor	Touch Screen			Discrete
User Interface	GUI (Graphical User Interface)			Discrete
Data Storage	Store in computer hard disk			None
Recipe Edit	Easy to edit with GUI page			None
Gas Calibration	Easy to do gas calibration with Software			None
A/D Precision	14-16 bits			None
Diagnostic Function	More functions and I/O hardware "exposed" for easy maintenance and trouble shooting			Limited
Positioning Sputter	Yes			No
Power Distribution Box	New, AC380V/208V/3Phase/5Lines		Used	
Shutter Sensors	New, Optoelectronic Sensors		Used, Microswitches, mechanical	
Table Raiser/Lower/ Microswitch	New		Used	
Hoist Microswitch	New		Used	
Gauge Controller	AW-531 Gauge Controller , 3x Ion Gauge and 6x TC Gauge Capability , GUI/Touch Screen		PE Ion Gauge Controller (DGC, WRG), 1x Ion Gauge and 2x TC Gauge/each	
Valves	New		Used	
Gas Line	New		Used	
Motors,Actuator,Relay,Solenoid	New, DC 24V		Used, AC 115V	
RF Generator and RF Match	New, can be installed inside the chassis		Used	
DC Power Supply	New, can be installed inside the chassis	Used,Fully tested, , can be installed inside the chassis	Used, individual chassis	
Reed Switch	New	Used,Fully tested	Used	
Light Tower	New		Optional	None
Loadlock and Chamber	New	Fully refurbished, new if necessary	Used	
Other Parts	New	Fully refurbished, new if necessary	Used	
Overall Space	Main Console Only		Main Console, DC/RF Power, Computer (Optional)	