



AccuSputter AW4450

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 AW4450 Series Sputter Deposition systems with our own **integrated process control system, Feed-thru assembly Table Rotate/Lift Subsystem**, giving our customers the tools to achieve a production edge at very low cost impact.

AccuSputter AW4450 Key Features

- ⊕ Production-proven sputter technology Optimum
- ⊕ AW-4450 System Control
- ⊕ Feed-thru assembly Table Rotate/Lift Subsystem
- ⊕ 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

AccuSputter4450 Sputter Materials

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

AccuSputter AW4450 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 N₂; ② O₂; 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 AW4450 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 Feed-thru assembly Table Rotate/Lift Subsystem
 - 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. 7 1/2" 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