

Specifications and Quotations

# Compact System

- Magnetron sputter-

## Feature of Magnetron Sputtering System

- 1. Deposition material and thickness** : Metals, Oxides(**Option2,3**)
- 2. Film thickness uniformity** :  $\leq \pm 5 \%$
- 3. Substrate Holder** : about OD 50 mm
- 4. Deposition** : deposition by DC Magnetron sputtering method  
- deposition by RF Magnetron sputtering method (**Option 3**)
- 5. Throughput** : up to  $\Phi 2''$  substrate x 1 sheet / batch  
- up to  $\Phi 3''$  substrate x 1 sheet / batch(**Option1**)
- 6. Deposition thickness** : Customer specified

## *Feature of Magnetron Sputtering System*

**7. Vacuum :** ▪ Base pressure :  $5 \times 10^{-5}$  Torr

▪ Ultimate pressure :  $5 \times 10^{-6}$  Torr

**8. Vacuum chamber :** Process chamber (ID250 x H300 mm)

**9. Control system :** Manual control

**10. Purpose :** Research and development

## Specifications of Magnetron Sputtering System

### 1. Vacuum chamber module

#### a. Process chamber

- Chamber size (ID250 x H300(mm))
- Hinged Top door
- Rear of chamber: pump and pumping line installation
- Ports: for Pumping, venting, gauge, window, thermal boat, valves, etc.

#### b. Substrate holder (plate)

- about OD 50 mm, plate for  $\Phi$  2 inch x 1 ea
  - about OD 76 mm, plate for  $\Phi$  3 inch x 1 ea (**Option 1**)
- Sample (un)loading : Manual
- Rotation speed is adjustable (0 ~ 20rpm) (**Option 1**)

## Specifications of Magnetron Sputtering System

### 2. Vacuum module

#### a. Vacuum pumps

- Oil Rotary pump(150 ℓ/min)(Kodivac), 1 set, for roughing pumping of process chamber
- Oil Diffusion pump(N<sub>2</sub>, 215 ℓ/sec)(Kodivac), 1 set, for high vacuum pumping of process chamber
  - Oil Diffusion pump → Turbo Molecular pump (80 ℓ /sec) exchange (**Option 4**)
- The capacity of each vacuum pump must satisfy followed conditions,
  - Base pressure  $5 \times 10^{-5}$  Torr
  - Ultimate pressure  $5 \times 10^{-6}$  Torr.

#### b. Vacuum valves and pumping lines

- Right angle valve, 1 set, for Diffusion pump
  - Gate valve, 1 set, for Turbo Molecular pump (**Option 4**)
- Right angle valve, NW 25, 1 set for roughing & slowing roughing pumping
- Right angle valve, NW 25, 1 set for foreline pumping of Oil Diffusion pump
- Venting valve, 1 set for Process chamber venting
- Pumping lines

## **Specifications of Magnetron Sputtering System**

### **c. Vacuum measurement**

- Low vacuum gauge sensor, 1set
- High vacuum gauge sensor, 1set

### **3. Magnetron sputtering module**

#### **a . Magnetron sputtering cathode, 1set**

- Target size : 3 inch diameter
- Cooling : Internal to backing plate
  - Manual shutter
  - Fixed angle

#### **b. DC power supply, 1set**

- 1 kW (800V – 1.25A), DC Sputtering power supply, 1set
- cable : M-N type

#### **c. RF power supply, 1set (Option 3)**

- 300W RF generator (Operate on the ISM frequency of 13.56 MHz)

## Specifications of Magnetron Sputtering System

### 4. Thermal evaporation source module

- MFC : Ar (100sccm) for sputtering process
  - O<sub>2</sub> (100sccm) for sputtering process (**Option 2**)
- Read/out box : 1 channel, 1set
  - 2 channel, 1set (**Option 2**)
- Gas valve : Ball valve (manual type), A-lock fitting
- Gas line & Fitting : EP grade SUS tube, A-lock fitting

### 5. Frame

- Frame size : 650(W) x 900(D) x 900(H) mm
- Painted profiled mild steel
- The whole machine is covered with paint removable panels
- The frame is also equipped with adjustable legs

## *Specifications of Magnetron Sputtering System*

### **6. Facilities (Customer side)**

- a. Water flow system with purging valve
- b. Electric power requirements : AC 220V, 20A (about max. 4kW)
- c. Exhaust line NW25 for roughing pump
- d. Gas requirements
  - Argon gas for sputtering process, 99.999%, regulator, A-lock fitting
  - Oxygen gas for sputtering process, 99.999%, regulator, A-lock fitting (**Option 2**)
- e. Sputtering target : 3" target with thickness 6.35mm



## ***Proposal of Magnetron Sputtering System***

### **7. Warranty**

- During one - year period, Manufacturer warrants for repair all faulty equipment without charge except that improper operation, maintenance and handling by the customer. All consumable materials are entirely excluded from warranty.

### **8. Delivery**

- Normally 8 weeks after PO

### **9. Validity**

- 30 days from the date of signature

## *Proposal of Magnetron sputtering System*

### **10. Attachment**

- Concept drawing and photograph of proposal Magnetron sputtering system

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