
Sputtering Systems 101

DC/RF Magnetron Sputtering Systems for Research Applications!

What you need, and how you can come closer to your objectives

Basic 101 information is provided for those who are actively engaged in research, and academic institutions, and desire to build their own dedicated, first-generation sputtering system that can be used for general R&D applications. There is no limit on how sophisticated a system can be, however, useful information is provided.

Components Required:

- Mechanical Pump** (Roughing)
- High Vacuum Pump**
 - Turbo molecular Pump
 - Cryogenic Pump
- Stainless Steel Chamber** (18" or 24")
- Base plate** (stainless steel)
- Feedthroughs**
 - Thermocouple
 - Power
 - Instrumentation
- Viewports** (zero-length)
- High Vacuum Valves**
 - Gate Valves (manual or pneumatic)
- Sputter Sources**
 - Circular Cathodes (1", 2", 3", 4" or 6" dia)
 - Rectangular Sources
- RF Generator** (normally 13.56MHz/600W)
- Matching Network, and Coax cables**
 - Automatic Network
 - Manual Network (much cheaper than automatic)

- DC Power Supply** (1kW output)
- Thickness Controller**
- Pressure Control and Measurement**
 - **Thermocouple Gauges/Readout Unit**
 - Pirani
 - **Capacitance Manometer Gauge Heads**
 - Ambient or Temp. Controlled types
 - Type of fittings (2.75" CF flange optional)
 - **Digital Readout Unit for Capacitance Manometer Gauge Heads**
 - 1-channel or 2-channels type
 - Standard RS232 interface
 - **Manual Gas Control Valve OR**
 - **Mass Flow Controllers (MFCs)**
 - 0-100 or 0-200sccm flow rate
 - Suitable for inert gases such as N₂, O₂, Air etc.
 - **Digital Readout Unit for MFCs**
 - 2-channel or 4-channel (depends upon MFC quantity)
 - Cables to connect MFCs to Digital readout unit (one per MFC)
- Substrate Holder Platform**
 - Size
 - Heated, Cooled
 - Stationary, Rotate

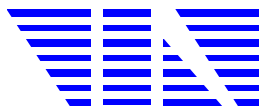
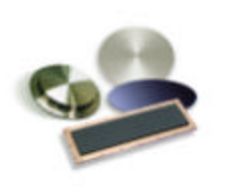
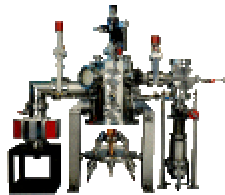
Control Platform

- Manual
- PC automated

Suitable structure to mount component

Supplies/Consumables

- Sputtering Targets
- High purity evaporation materials
- Copper (OFHC) gaskets
- Pump oils, greases, sealants etc.



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