

Anatech USA, Model Hummer BC-20, DC sputtering high vacuum thin film deposition system with the following features and equipment. The process chamber will be configured for a “Sputter-Up” process with a substrate fixture assembly located above the sputtering sources. The system is a complete turn-key operational tool, including: one (1) set of operation and maintenance manuals complete with electrical schematics.

### General Description:

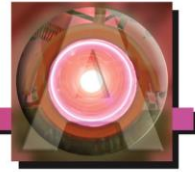
- 1 – 2X10” Linear Magnetron Sputtering system for Thin Film Deposition
- Cabinet dimensions: 54-inches wide x 48-inches deep x 84-inches high
- System overall height is determined by the final configuration
- Roughing pump is mounted remotely
- Turbo pump is externally mounted on rear pumping port

### Chamber: 304 stainless steel construction

- “D-shape” box style deposition chamber
- Fully electro polished chamber body
- Dimensions: 20-inches x 20-inches x 26-inches high
- Full opening aluminum door with view port
- One (1) 4-inch diameter view port in the door
- Manually controlled shutter to protect door view port glass
- Stainless steel deposition shielding to protect chamber walls and the door
- Locking hardware for a padlock (customer supplies padlock)

### Process Chamber will have the following features:

- One (1), 2X10-inch Linear US Inc. model ONYX-210 Indirect-Cooled Magnetron sputtering source mounted on the chamber bottom
- One (1), Source Shutters pneumatically operated
- Source is “Flex” mounted for variable angle of incidence. 0-30°
- Adjustable source to substrate distance – vertical at atmosphere
- Process Gas inlet located on top of chamber
- Mask and chips will load from the top and be held in place by spring clips.
- Platen rotation 0-20 RPM variable speed, connected to a Ferro fluidic Feedthrough mounted on the top plate of the chamber.
- Platen to have a handle like coupling to the drive mechanism via a pin mechanism serves as handle for lifting platen from chamber for loading and unloading



## Valves:

- Electro-pneumatic isolation valve for foreline KF flanges
- Electro-pneumatic isolation valve for roughing line KF flanges
- Electro-pneumatic high vacuum throttle valve, 3-position (open, automatic throttle adjustment, closed)
- One (1) Mass Flow Control, 200-SCCM for process gas electronic solenoid isolation from vacuum chamber

## System Control:

- Siemens Industrial control Model S7-200 “Touch-Panel”
- PLC based for ease of control
- “Touch-Panel” control screen includes process set points
- Auto/Manual operation system controller
- Digital display of vacuum pressure, power, gas and time
- Password protection for process and recipes

## Sputtering Power Sources

- One (1) 2500-watt DC power supply for magnetron sources
- Fully integrated to the PLC to alarms if operational parameters fail

## Pumping System:

- Roughing Pump - Edwards XDS 35i
- Turbo Molecular Pump – Edwards model nEXT400d, 400 l/s pumping capacity. Include controller and interface cable.

## Gauging:

- Micro-Ionization Gauges – Vacuum gauge, located on the high vacuum chamber
- Mini-Convector Gauges – Control has two (2) convector gauges; one (1) located in the vacuum chamber, monitoring the roughing pressure and setting the high vacuum crossover pressure and one (1) for monitoring the turbo pump rough vacuum pressure

## System AC power requirement & safety:

- Single Phase 125/250 vac 50/60 Hz @ 30 with neutral amps protected at the system by a circuit breaker and system EMO, EMO will disable AC power throughout back to contactor feed from the breaker in the even that an emergency shutdown is required. All vacuum isolation valves are normally close and will shut with a loss of main power.
- Single phase 208/250 20 Amp
- Roughing pump controlled by internal contactor with an outlet receptacle on the main power distribution box.
- Various AC power distribution throughout the mainframe of the cabinet rated and labeled according to US electrical standards.