

# "Desk Top CVD" - a Researcher's Tool for Oxides, Metals, Organics, Carbides, Nitrides and other Compound Semiconductors

## The **Economical** Chemical Vapor Deposition (CVD) Tool for Researchers

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### Overview:

SMI's *Desk Top* CVD Research tools are designed to economically meet the material development needs of researchers.

The SMI *Desk Top* CVD tool is a vertical reactor CVD tool using a single vapor injector jet to deposit films onto a stationary platter for high deposition efficiency. The system produces pin-hole free conformal films making use of: thermophoresis, which drives particles from the deposition plane; a uniform precursor flow distribution with separation of reactive precursors; and a metal construction for safety, adaptability, reliability and high purity film production. With a starting cost of ~ \$200,000, all of the researcher needs are met in this compact versatile tool.

### System Specifications:

#### *Desk Top* CVD Reactor:

25mm x 35mm Wafer Holder

**Pressure:** 0.1 Torr to Atmosphere

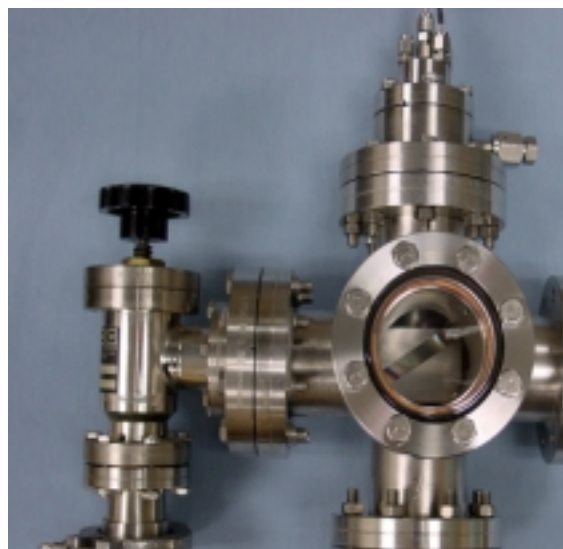
**Temperature:** RT to 900C in Oxygen  
: RT to 1600C in Hydrogen

**Reactors Features:** All Metal Stainless Steel Construction, Optical/ In-Situ Monitor Ports, Manual Wafer or Platter Transfer, Reactor Wall Temperature Control option, Plasma or laser enhancement options

#### *Two Bay Steel Frame*

#### Reactants & Gas Source Options:

Gas Sources  
Metal-Organic (Liquid Bubblers), 3 Valve-Run/Idle  
Liquid Delivery Flash Evaporation Sources,  
Solvent Sources



**Exhaust System:** Corrosive Series Pumping, Throttle Valve Pressure Control, Particle and Oil Filters, and Solvent Condenser Optional

**ICCS Process Control System:** Utilizes an Interface Module and a PC – PLC Combination with Interactive Graphical User Interface, Spread Sheet Process Recipe Generation, Trend Monitoring, and Safety Overrides (among other features). Automatically Controls: Flows, Pressures, Valve Switching, Temperatures, and Process Timing.

#### System Options (Partial Listing):

LoadLock Wafer Transfer  
Plasma Process Enhancement (rf or microwave)  
In-situ RGA or Optical Monitors  
Solute-Solvent Mixing In Place Glove Box  
In-Situ Annealing or Plasma Clean Station(s)  
Gas Monitors and other Safety Equipment  
Run/Vent Pressure Balancing  
Process Demonstration  
Additional Sources



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