

# SC-1



## (PE-)ALD/PVD for wafers and 2D parts

One platform to deliver cluster-level capability in a compact footprint.

### **Vacuum-Integrated ALD/PVD:**

Sequential atomic and bulk deposition without breaking vacuum; maintaining a perfect interface between materials and preventing interfacial oxidation and contamination.

### **Motionless Transfer:**

Arm-free architecture minimizes mechanical complexity, particle generation, vacuum volume and overall system footprint.

### **Decoupled Modules:**

Independent ALD/PVD sources enable material-specific configurations without cross-contamination.

### **Modular Platform:**

High-versatility design for rapid process retooling and support for diverse material sets.

### **Compact Cluster Capability:**

Multi-chamber functionality with a reduced footprint; simplifies cleanroom integration and facility hookups.

### **Process Versatility:**

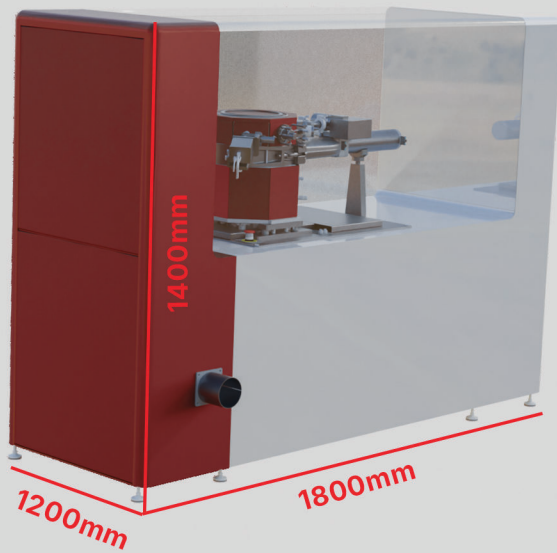
Supports broad precursor and target ranges for rapid material screening and pilot production for the materials library of ALD and PVD..

### **Proven Materials:**

PVD: Various metals, alloys, and ceramics.

ALD:  $\text{Al}_2\text{O}_3$ ,  $\text{ZnO}$ ,  $\text{SiO}_2$ ,  $\text{TiO}_2$ ,  $\text{Y}_2\text{O}_3$ ,  $\text{ZrO}_2$ ,  $\text{HfO}_2$ ,  $\text{LiNbO}_x$ , Al, Cu, Au, Nitrides, and more.

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<b>Interchangeable Substrate Holders</b>	4 - 6 in. wafers Fixed or Temperature Gradient Stages (30 °C to 450 °C) High temperature (~900 °C) rotational and z-stages with bias
<b>Modularity</b>	Modular ALD and PVD panels to integrate various in situ metrology tools, vieports, feedthroughs and easy maintenance
<b>ALD Sources</b>	Up to 4 precursor bottles and 5 process gases with individual inlets to the chamber (Non-)heated precursor bubbler bottles Ozone generator option MW PE-ALD compatible
<b>PVD Sources</b>	Up to 4: 2-4 in. magnetrons thermal evaporators E-beam sources
<b>(PE)ALD-PVD Materials</b>	Combination of (PE)ALD/PVD materials library of various metals and ceramics

## 2D ALD-PVD cluster tool

Pristine multilayers without breaking vacuum

### Built to evolve

Panel system allows to add, remove and interchange features at any time.

### Fit your process

New features can easily be integrated into both Hardware and Software

### Explore new materials

Combine (PE)ALD & PVD to explore new multilayer stacks that could not previously be reached

### Everything in one machine

Deposit (PE)ALD-PVD multilayers today and do plasma diagnostics of your PE-ALD tomorrow.  
The SC-1 can integrate most in-situ metrology and accommodate various PVD sources such as magnetron sputtering, thermal or E-beam evaporation.

