SCT

Arrow Series
Modular In-line Vertical Sputtering Systems

Speed. Large substrates. Robotic automation. Options too numerous to mention them all. These words describe the SCT Arrow.

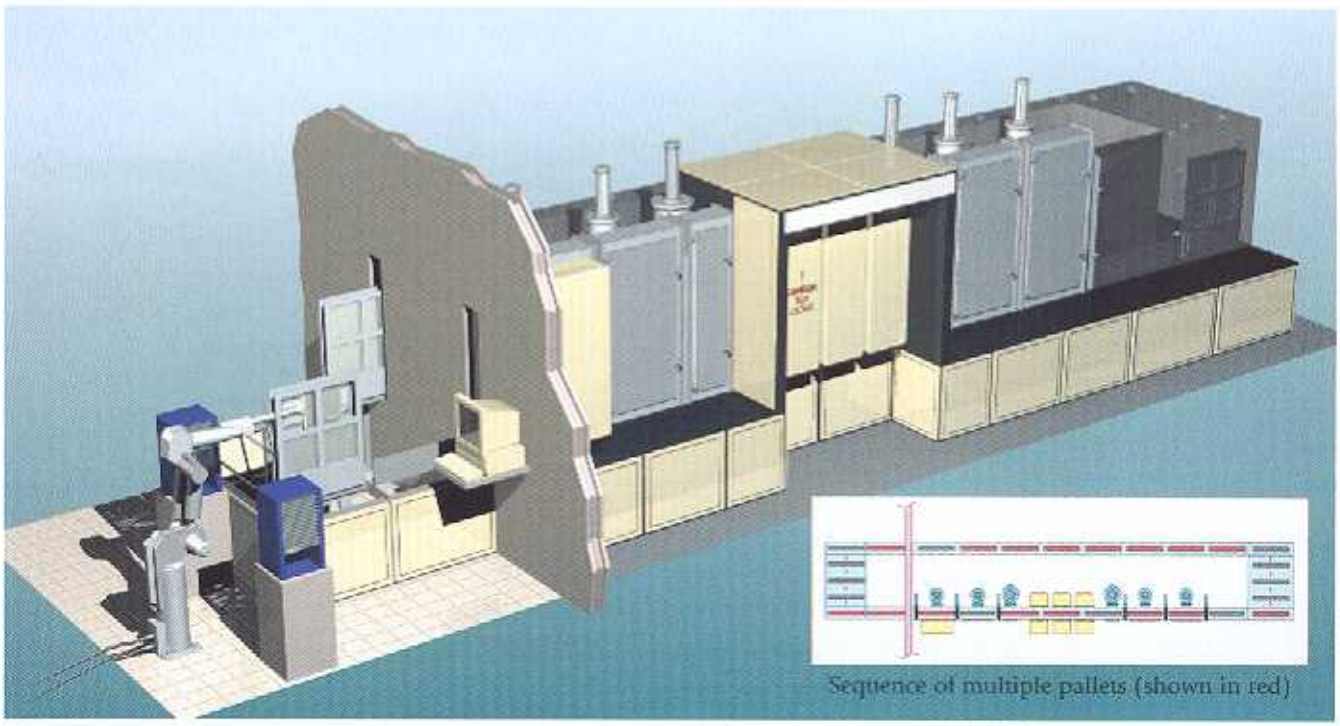
The SCT Arrow in-line vertical sputtering system is a high throughput modular design with a pallet size of between 14 and 28 inches, which allows for the addition of deposition, isolation and magazine load-lock chamber modules as specific process requirements demand.

When configured with load-locks, pumping chambers and operator load and unload stations, the SCT in-line sputter system is fully automated with a variable speed drive system for high throughput. The system has the capacity of sputtering onto both sides of the substrate carriers simultaneously while providing the option of substrate backside heat through the middle of the two-sided pallet.

It is a high performance system which utilizes widely available, long lasting, best-of-breed components.

Programmable High Vacuum System Controller with Data Logging Capabilities

SCT provides as a standard a GE Fanuc PLC industrial controller. This control system includes ladder logic software with required programming for the SCT Arrow. The operator/engineer computer interface includes a GE Fanuc Display Station 2000 (GE 15" touch screen computer); GE "Cimplicity" HMI or equivalent, and all required software programming are also provided. The control system also can perform data logging of all key process variables.



HANDS OFF—A robot arm loads a pallet onto the pallet carrier as it prepares to unload a processed pallet at the return exit. This three-dimensional rendering depicts one possible configuration with load and unload stations, load-locks, pumping chambers, process chamber, and return carrier.

Load-lock Modules and Carrier Load/Unload Stations

The load-lock modules and load and unload stations allow for continuous automatic, atmosphere-to-atmosphere processing of carriers through the system. The carriers are automatically fed into the load-lock entrance, then through the pumping chamber, and into the deposition chamber.

The addition of the pumping chamber allows for pallets to be positioned in the deposition chamber a mere few inches from each other, thereby optimizing throughput.

Deposition Module

The deposition chamber can be configured with RF and DC cathodes, on one or both sides of the pallet, in whatever numbers necessary to complete the process in one pass. The modularity of the Arrow also allows for the addition of more cathodes as processes change and throughput demands increase.

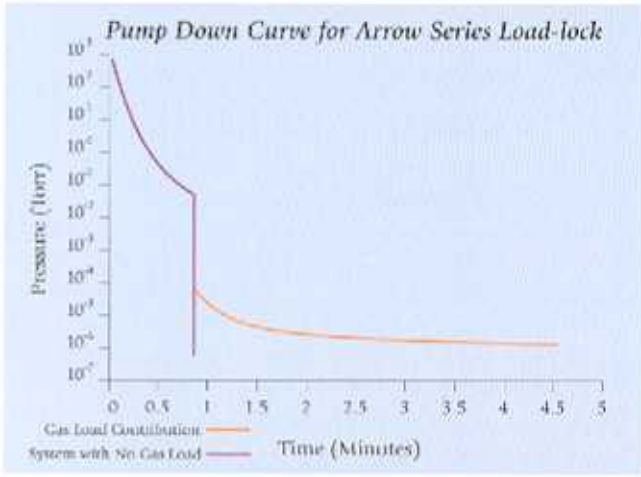
Each opposing pair of cathodes has its own power supply and cryopump.

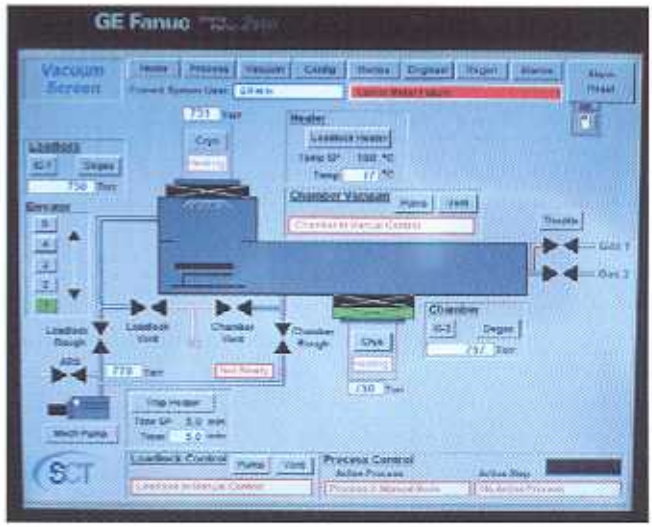
Custom Features

All of SCT's systems are built to customer specifications, making each system unique. Our engineering department can make any desired modifications to the basic design so that we can provide you with a fully documented custom system tailored to your specific requirements.

Here are some of the features which are available:

- Cassette-to-cassette robotic substrate handling
- Dual substrate pallets with central substrate heater for dual sided deposition and heating
- RF etching
- RF or DC substrate bias
- Ion beam cleaning
- Reactive deposition
- Through-the-wall clean room installation
- Load and unload from one end of the system to minimize clean room space and use only one robot arm
- Total automation; no need for human intervention under normal conditions





EASY CONTROL—The entire system is controlled by a GE Fanuc PLC through a touchscreen. Simple, easy-to-understand screens allow full access and control of process, including robotics. PLC has data logging capabilities and can be networked for centralized control.

Specifications

- **Chamber Construction**

  All internal surfaces are electropolished 304 stainless steel. Viton o-ring sealed flanges at both ends mate with other system chamber modules or isolation valves.

- **Frame and Cabinetry**

  Welded steel tube frame; adjustable feet; formed steel panels; baked enamel finish.

- **Sputter Sources**

  A variety of RF and DC cathodes are available. Cathodes range in size from 20 to 34 inches long by 5 inches wide.

- **Substrate Carriers**

  Electropolished stainless steel with Bartemp® bearings.

- **System/Gauge/Valve Controller**

  GE Fanuc PLC with data logging capabilities.

- **High Vacuum Pump**

  Cryopump for clean, high speed pumping. Pumping speed dependent on cryopump size. Other types of pumps optional.

- **Roughing Pump with Blower Option**

  Size commensurate with chamber volume.

- **High Vacuum Pump Isolation Valve**

  Electropneumatically actuated stainless steel gate valve isolates the high vacuum pump from the process chamber. Size commensurate with chamber volume.

- **Roughing and Foreline Valves**

  Stainless steel electropneumatically actuated high vacuum bellows sealed right angle valves.

- **Vent Valves**

  Stainless steel valves, electropneumatically actuated.

- **Viewing Ports**

  4" viewports with manual shutters to minimize coating of the viewing surface and 2.75" metal sealed flange RGA port.

- **Air**

  Normal, dry lubricated shop air at 70–125 psig.

- **Power**

  208 VAC, 3 phase, five wire, 60 Hz, 100 Amps. A separate supply is required for cathode power supply. Other voltages also available.

- **Water**

  Approximately 8-10 gpm at 60 psi with a maximum temperature of 70°F.

- **Gaseous Nitrogen**

  10 psig.

Custom Configurations Available

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