



5500 SERIES CVD CONVEYOR SYSTEMS

5500 SERIES APCVD FILMS

Application	Substrate	Thin Film	Film Properties
Transparent Conductive Oxide	Sheet Glass (BSG, Soda-lime)	SnO ₂ -F	Bulk Resistivity <600 μΩcm. Sheet Res. to 10 Ω/sq. >85% Optical Transmission 12-20% Haze adjustable, (F-dopant dependent)
Diffusion Barrier	Silicon Wafer	SiO ₂	Non-Porous, defect/pinhole free
Anti-static	Sheet Glass	SnO ₂	5-100 kΩ/sq Clear, Colorless below 400Å
Barrier undercoat	Soda-lime Sheet Glass	SiO ₂	In-line barrier pre-coat for SnO ₂ Thickness adjusted Optically clear
Insulating layer	Sheet Glass, Silicon Wafer	SiO ₂	Thickness adjusted/application 500Å to 2500Å typically
Anti-reflective, reflective layer	Glass, Silicon Wafer	TiO ₂	Adjustable Index, from 1.8 to 2.35, Refractive index uniformity ±1%
Custom applications			



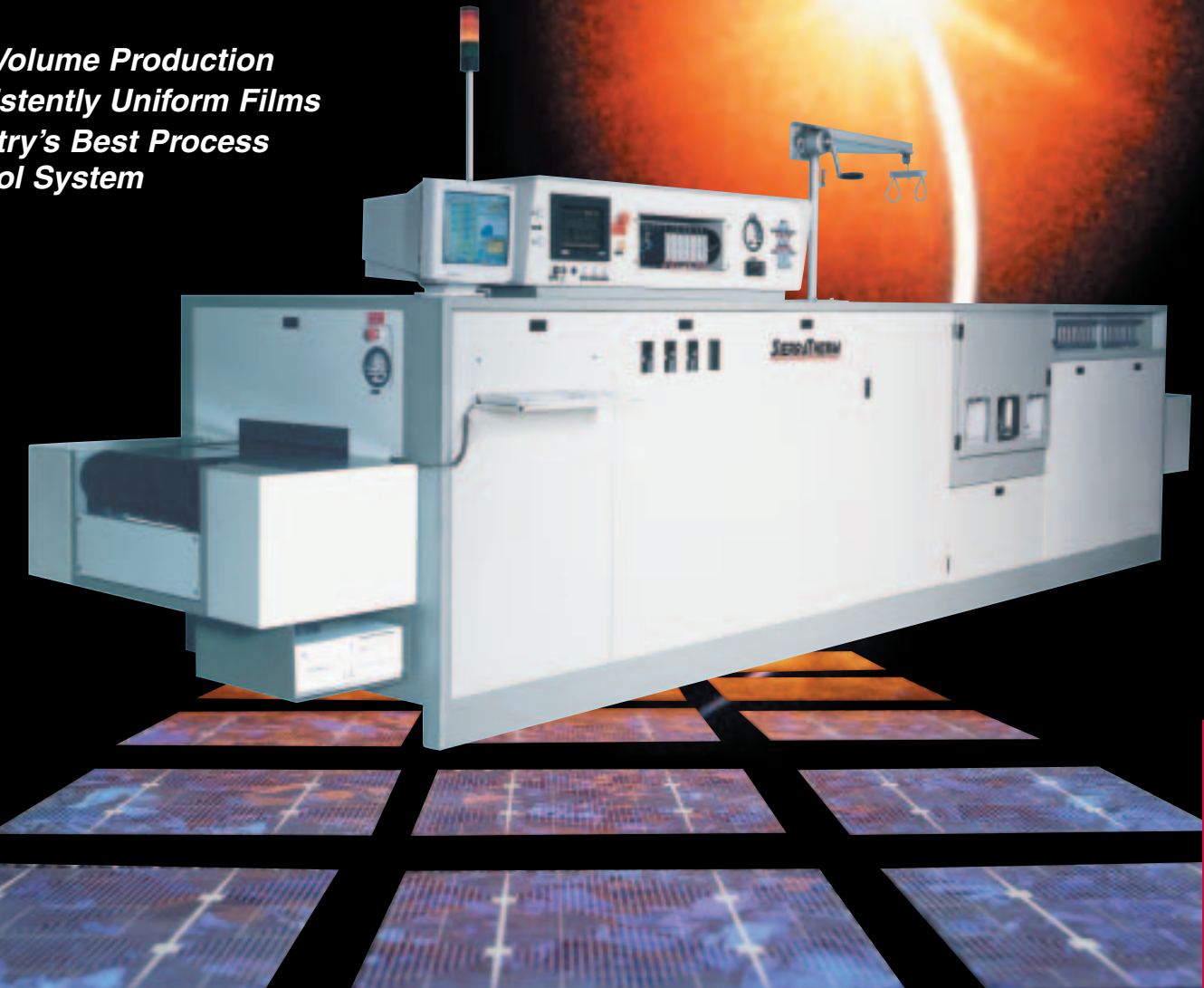
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CVD

5500 SERIES APCVD CONVEYOR SYSTEMS

- **High Volume Production**
- **Consistently Uniform Films**
- **Industry's Best Process Control System**



SIERRATHERM



ARISING FROM EXPERIENCE



APCVD

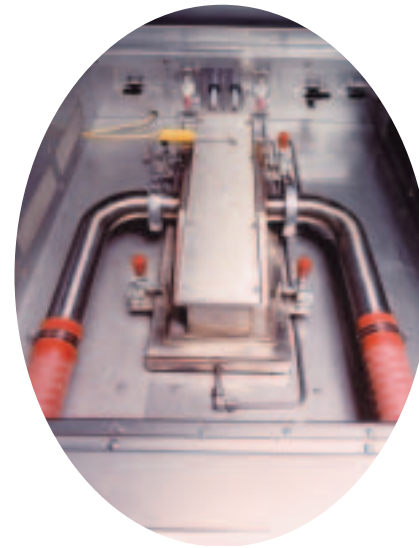
5500 Series Atmospheric Pressure Chemical Vapor Deposition Systems

The SierraTherm 5500 Series systems are designed specifically for high volume production atmospheric pressure chemical vapor deposition applications. Configurations for deposition of TiO₂, SnO₂, and SiO₂ are available in these state-of-the-art high throughput systems. Incorporating the latest in continuous production APCVD technology, SierraTherm Chemical Vapor Deposition systems provide the efficient reliable performance required in today's competitive manufacturing environment.

ADVANTAGES

The 5500 Series APCVD conveyor system excels in continuous high volume processing of substrates requiring single as well as multi-layer thin films. SierraTherm's in-line system design assures each substrate receives the same process treatment.

- Maintenance conscious design allows chemical injectors and exhaust ducting to be cleaned while in place on the system
- Multiple injector heads can be used in series within a single system, maximizing process throughput, uniformity, and flexibility while minimizing cost
- Modular chemical vapor injector head assemblies allow quick and easy installation and removal from the coating chamber
- Location and design of stainless steel bubbler systems maximize control and serviceability
- All injector head parts are durable precision machined structures ensuring accurate chemical delivery even after extended use
- Pump-based, bi-directional bulk refill system provides continuous chemical refill without process interruption or manual transfer
- Continuous self-cleaning mechanisms in critical exhaust restrictions prevent flow altering residue build-up
- Automatic process exhaust and precursor flow control guarantee consistent film results
- Three tiers of graded, power saving insulation reduce energy bills
- Stable, unsurpassed temperature uniformity control ensures consistent process results



Multi port injector head and exhaust vent



Level and temperature controlled chemical vapor bubblers

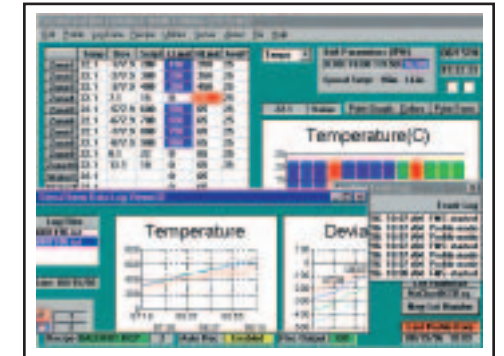


MicroTherm™

The Most Powerful Control System In The Industry

The APCVD Graphical User Interface features the SierraTherm MicroTherm™ Monitoring system: a Microsoft Windows™ – based software package for comprehensive system operation and processing monitoring. Here are just a few of the features of this powerful software:

- All process gas flows are monitored and recorded via software interface with Electronic Mass-Flow Controllers
- Easy to operate graphical user interface
- On-screen system parameter editing of temperature, gas flow, and belt speed set-points including high/low alarm limits
- Recording and viewing of system parameters with user definable time-base. Historical data can be stored on the system PC or downloaded for archival storage.
- Event log recording of all system alarms and operator actions/responses with time/date of occurrence and operator identifier
- User definable multi-level password protection allowing different levels of system control access
- Automatic downloading of process recipes at user selected times and intervals
- Full color on-screen profiler featuring 9 channel capability and profile analysis utilities
- Unlimited recipe storage with descriptive text files
- SPC data collection compatible with leading spreadsheet and data base systems
- On-line System knowledge base with instruction and troubleshooting manual



Bulk chemical storage and refill system