



Thin Film Technology

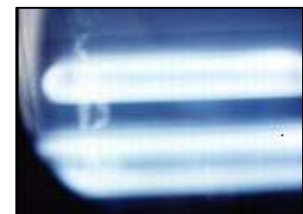


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Single Layer System to Turnkey Multilayer Production System
Standard to Flexible Configuration
Design to Process Development
Tecport Delivers the Total Thin Film Solution

PVD Systems

Physical Vapor Deposition systems are designed and manufactured to provide reliable coating processes of materials such as metals or oxides for mass production. PVD systems service a broad spectrum of industries from automobile to photonics to semiconductor.

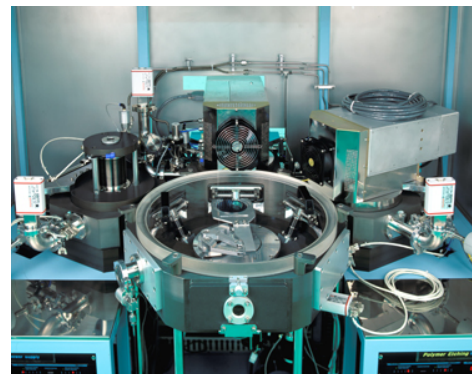
- Split Door Box Electron Beam Evaporation Coating System
- Batch / In-line Magnetron Sputtering System
- Ion Beam Sputtering System
- Ion Arc System
- Roll Coater



CVD Systems

CVD – Chemical Vapor Deposition systems, similar to PVD systems in their ability to deposit thin film, are designed and manufactured to support the semiconductor industry, from integrated circuits, optoelectronic devices, to nanotechnology micromachines, to protective powder coating.

- Batch / In-line PECVD System
- Atomic Layer CVD System
- Cluster Tool CVD System
- LPCVD System



The vacuum coating technology has been continuously changing with advancement in material science and automation technology. The market brings newer applications, more production capability demand and cost effective solutions. The in-line system is the solution for such demands and this is where the complex blend of material science and automation technology produces fully automated production line.

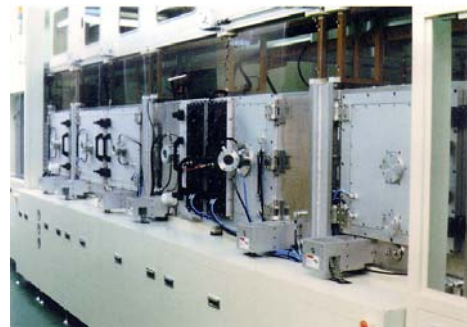
In-line Sputtering Systems

- Display glass coating
- Film Coating
- Architecture glass coating
- Solar cell coating
- Metal and Oxide
- Surface hardening
- Decorative coating



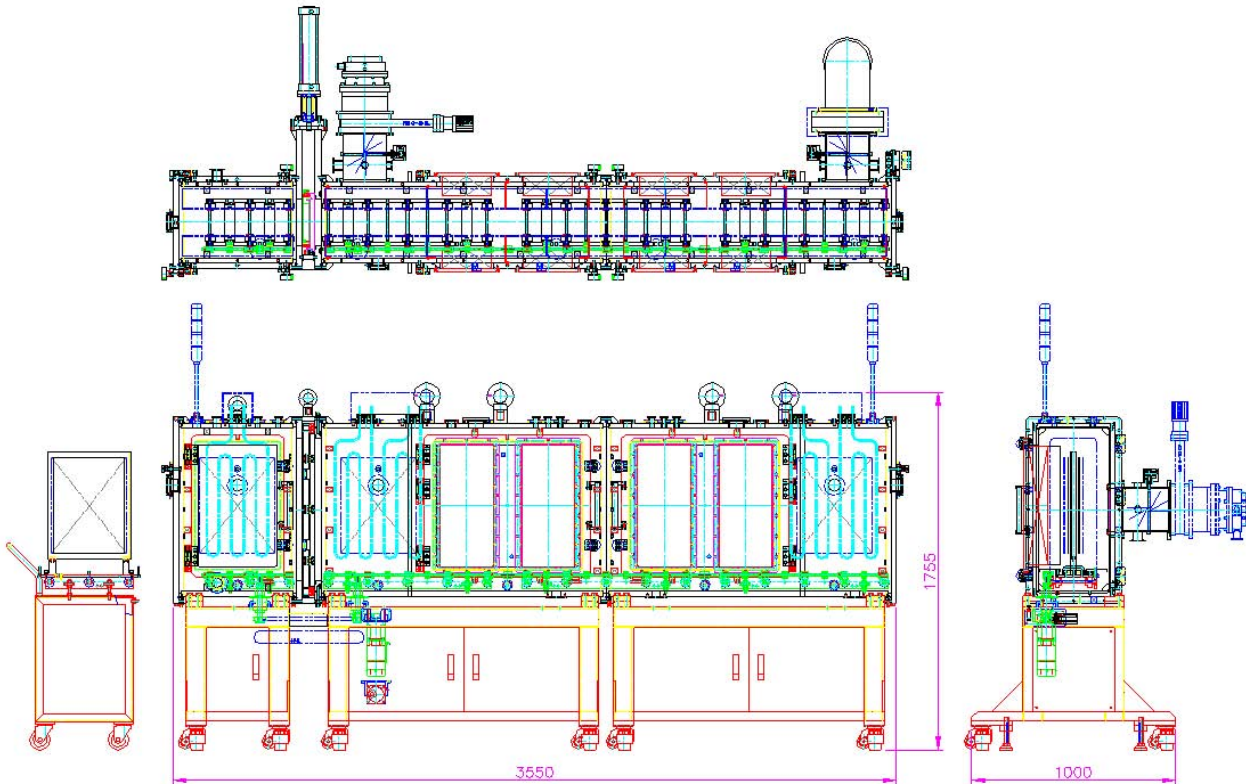
Features

- Chamber material: stainless steel or mild steel
- Main pump: turbo pump or diffusion pump
- Base pressure load-lock: $< 1.3 \times 10^{-3}$ Torr
- Base pressure buffer chamber: $< 1.0 \times 10^{-5}$ Torr
- Base pressure process chamber: $< 5.0 \times 10^{-6}$ Torr
- Thickness uniformity: $< \pm 5\%$
- Heating temperature: Max 450 degree C
- Temperature uniformity: $< \pm 5\%$
- Carrier moving: smooth linear motion on guided rail
- System control: PLC / HMI control
- Double side deposition capability



Small Scale Production In-line Sputtering System

- PLC / HMI Control
- 8ea Sputter Guns (600mm L x 270mm W)
- Carrier loading capability: 2 x 24" sheets / carrier
- Sheet capacity: 300 x 24" / day
- Hard coating
- Polymer surface modification
- Metal coating
- 3 rotary pumps and 2 turbo pumps
- Gas: Ar, O₂, N₂
- Heater: NiCr embedded pipe heater Max 300 C



Symphony

Innovative Design Harmonizes Thin Film Technology and Equipment at Its Best

Companies across the globe are looking for innovative ways to reduce costs while continuing to provide their customers superior products and services. Finding the precise combination of thin film technology and system integration becomes a key factor that enables manufacturers to reduce cost, to increase production capability, and to create the competitive advantage needed to survive in today's aggressive marketplace.

Symphony Delivers That Precise Combination.

Symphony realizes the customer's vision of functionality and features that bring real value to production. Symphony offers flexible evaporation techniques using the most sophisticated and time-tried instruments in the industry. Symphony incorporates sophisticated software to provide a user-friendly operator interface for complete process automation and data analysis.

Symphony realizes the customer's vision of functionality and features that bring value to production.

- Flexible evaporation techniques.
- Integration of the most sophisticated and time-tested instruments by industrial leaders.
- Advanced multilevel software structure to satisfy the most demanding engineer, and yet still provide a very user-friendly interface for the beginning technician.
- It allows complete process automation, remote control, trending, data analysis and recovery.



Trouble Free Commissioning

During commissioning, Tecport will not only satisfy the equipment specifications and integrity, but also will assist our customers in process development and fine tuning system parameters. By the end of commissioning, our customers are equipped with the training and process setup to start production immediately.

Symphony OPUS Software

Symphony Opus process control software enables you to have the best of both worlds.

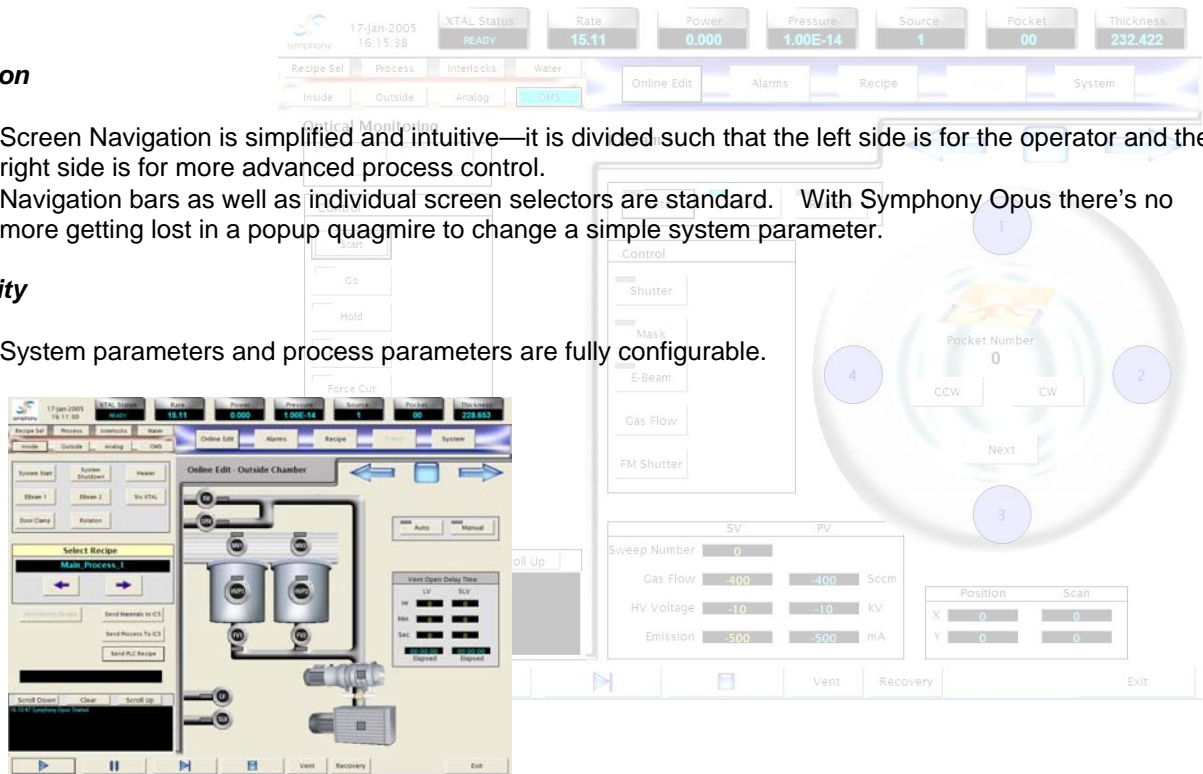
Ease of use and flexible configuration parameters to satisfy the most demanding engineer.

Operation

- Screen Navigation is simplified and intuitive—it is divided such that the left side is for the operator and the right side is for more advanced process control.
- Navigation bars as well as individual screen selectors are standard. With Symphony Opus there's no more getting lost in a popup quagmire to change a simple system parameter.

Flexibility

- System parameters and process parameters are fully configurable.



Security

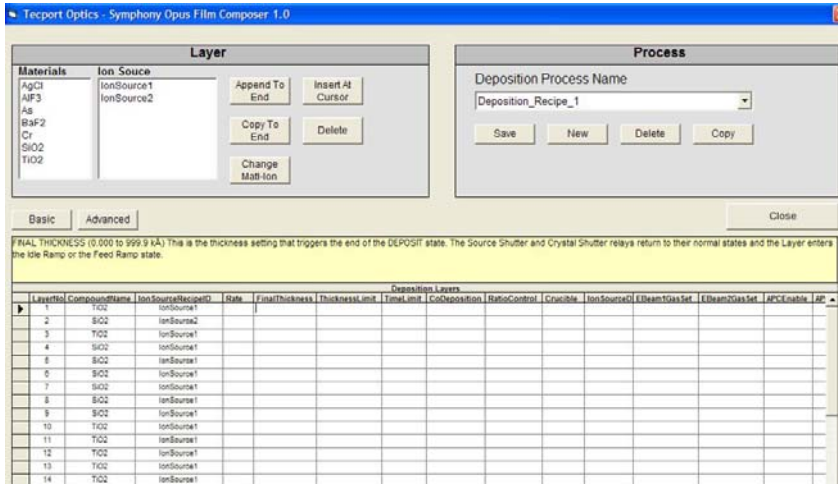
- Application Security is divided into three categories:
Operator
Engineer
Admin
- Each user has an individual login and password.

Data Logging

- Storage of process data in a database.
- Storage of alarm data in a database.
- Activity Log - Recording of all operator and system events in time sequence. System records all button clicks and parameter changes by Date, Time, Event, UserName, Run Number, and Recipe.
- Realtime trending and historical graphs.

Recipe Management

- Recipes are configured in blocks and then assembled into a final main recipe.
- All recipes are stored using human readable names, so there is no need to carry 'cheat-sheets' to reference process numbers.
- All parameters are available for adjustment in On-Line Edit.

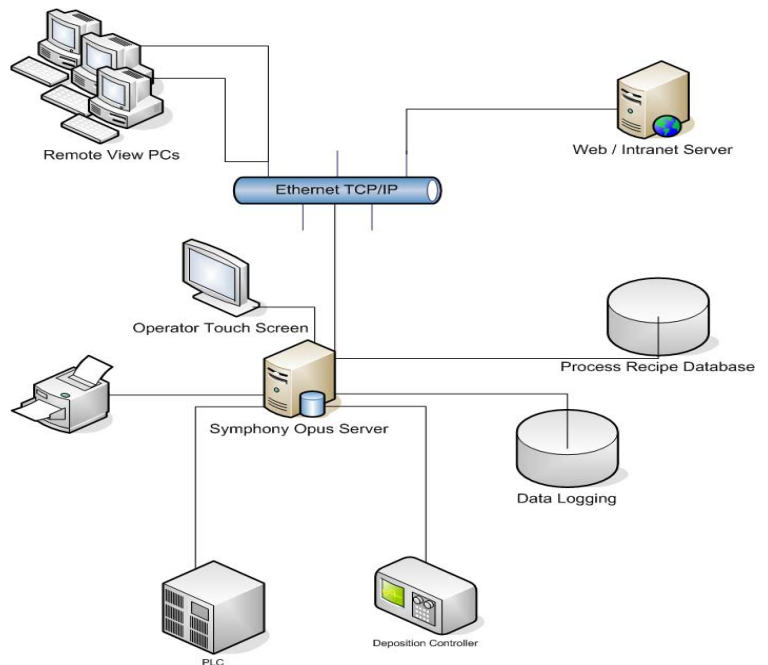


Maintenance Alarms

- Configurable alarms for maintenance periods based on run-timers.

Network

- Symphony Opus is Network Ready using standard Ethernet TCP/IP.
- Managers can view the HMI screen remotely from any pc via Ethernet.
- Remote support from Tecport is possible via Ethernet or Dialup Modem.
- Process Data, Reports, and Recipe information are all viewable over a standard Ethernet connection.



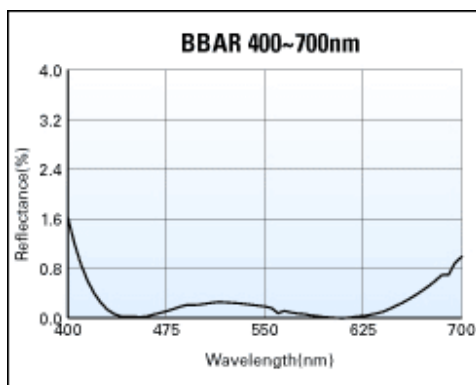
Online Help

- All product manuals are accessible from the HMI. Additional manuals can be made available simply by copying them into a certain directory.
- User configurable help messages and checklists in any language on each screen.

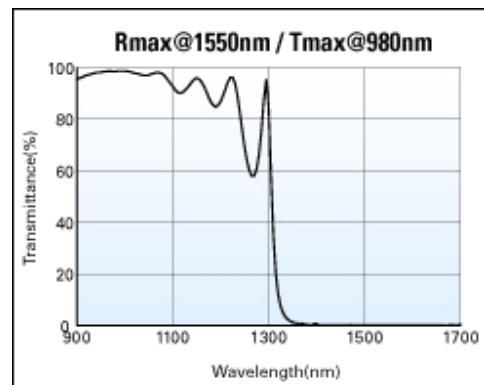
Process

Tecport continually demonstrates the system's capability through customers' requested feasibility studies. After commissioning, the customer possesses the coating process that meets their specifications. The followings are actual spectral measurements, using a Perkin Elmer Lambda 19 spectrophotometer, of some of the acceptance runs at commissioning.

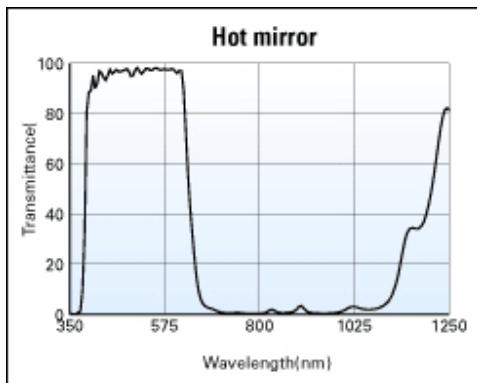
Broadband anti-reflection coating (BBAR)



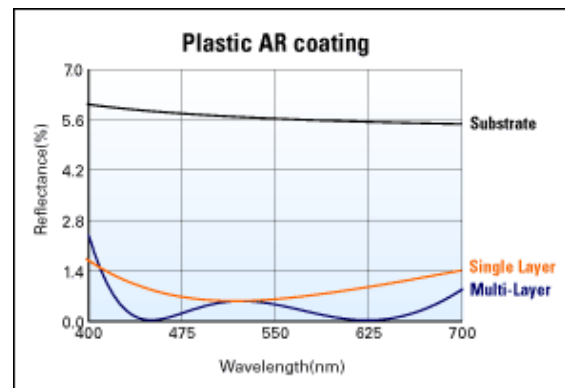
Short Wave Pass (SWP)



Hot Mirror



Anti- Reflection for Plastic



Thin Film Technologies – Other Processes

- ▶ Conductive Transparent Coating
- ▶ Cold Mirror
- ▶ Decorative Coating
- ▶ Edge Filters
- ▶ EMI Shield Coating
- ▶ DWDM Filter Coating
- ▶ Gain Flattening Filters
- ▶ Super Hydrophobic

- ▶ Infrared Optics Coating
- ▶ High Power Laser Damage Threshold Coating
- ▶ Narrow Band Pass Filters
- ▶ Fluorescent Filter for Life Science
- ▶ Filter for Solar Activity Observation
- ▶ Reflector for lighting and automobile
- ▶ Low Scattering AR / High Reflection Coating
- ▶ Diamond Like Carbon Coating

Application

Thin film coatings are widely used in many applications in vast industries. All around the world and all around us, thin film plays a major role and become a key element to new technology in our daily life. From barcode scanner in shopping center to airport security check point, from personal computer web camera to space Hubble telescope, from motor vehicle highway traffic surveillance to information highway internet, and from industrial heavy metal cutting laser to precision eye surgery laser, thin film coating making the speed of light works.

To this, Tecport is continuously providing advanced technology with never ending improvement in quality and products to support our customer to be successful leader in the industries they are serving.

Tecport strives to excel in every field, from design to production and not to mention service, as well as being flexible in response to ever changing market requirements.

▶ DLP™ Projector /TV ▶ LCD / Touch Panel ▶ LED / OLED ▶ Digital Camcorder ▶ Aircraft Cockpit



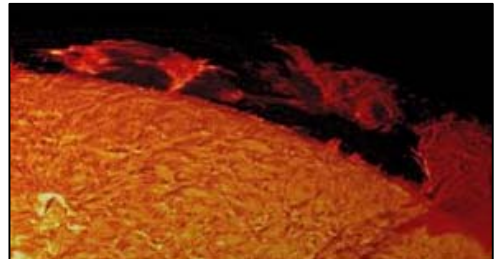
▶ Laser Optics ▶ Touch Panel ▶ LED / OLED ▶ Automobile Headlight ▶ Mobile Phone Display / Camera



▶ Fiber Optics ▶ Semiconductor Wafer ▶ CD / DVD Optical Pick Up ▶ Personal Digital Assistant (PDA)



▶ Ophthalmic Lens / Sunglass ▶ Office Equipment Component ▶ Security Camera ▶ Telescopes

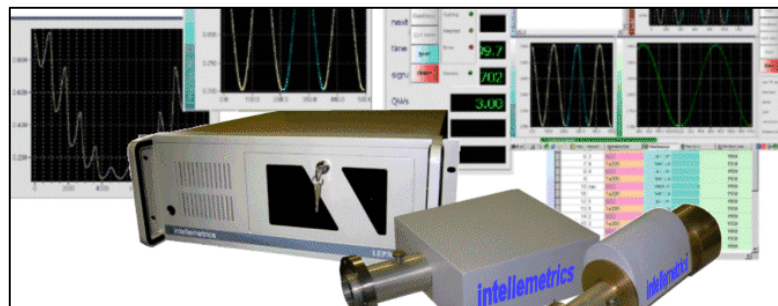
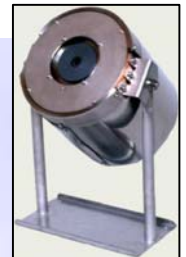
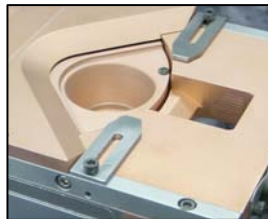


Integration of the most sophisticated and time-tested instruments by industrial leaders

- Thickness Monitoring/Controlling System – Inficon IC/5, Maxtek
- Optical Monitoring System – Intellevation (formerly Intellemetrics)
- Ion Source – Veeco / KRI
- E-Beam Source – Ferrotec / Telemark / Temescal/ JEOL / EBSOURCES
- Plasma Source - JEOL
- Cryogenic Pump – Helix CTI On-Board Cryogenic System
- Auto Pressure Controller – Inficon
- Programmable Temperature Controller – Eurotherm / Yokogawa
- Water Flow Sensor – Gemsensor
- Mass Flow Controller – MKS
- RGA – Inficon
- Pump – BOC Edwards, Leybold Vacuum
- Turbo Pump – Pfeiffer, Osaka



Tecport uses only proven sub systems and components from the best suppliers worldwide.



A Company Driven by Its Customer's Need for GSP

Globalization

Tecport maintains a strong global presence from the West to the Far East with specially trained teams of experts to support you both technically and logistically.



Service

Tecport business philosophy is “**WE SERVE TO SERVE AGAIN**”. We work actively with our world-class instrument suppliers to provide the best global service organization possible. As part of Tecport's **Total Support Package** you receive the best in system design, process development, and production support in the industry.



In order to provide the most adequate equipment for customer system requirement, Tecport can conduct feasibility study on actual substrate samples. Tecport has been working with simple anti reflection coating to Diamond Like Coating. With the experiences in multi industries of thin film technology, Tecport poises itself to conduct extensive study to win customer's confidence.

Product

Tecport produces leading edge thin film technology solutions, bringing together precise combinations of systems and processes that enable cost reduction and increased production capability and capacity. We produce results for our customers.

Commitment

Tecport has established itself as the center of thin film technologies. Customers receive the Total Support Package from system design to process development to production; simple R&D, state of the art turnkey mass production, single layer, or co-deposition multilayer plasma assisted deposition.

Finding the precise combination of thin film technology and system integration becomes a key factor that enables manufacturers to reduce cost, to increase production capability, and to create the competitive advantage needed to survive in today's aggressive market place.

Tecport relentlessly strives to provide leading edge thin film technology solutions and to bring together the system and process. Tecport's business philosophy is "We serve to serve again". We work vigorously and continuously with our world-class instrument suppliers to provide the best service organization for our customers.



Testimonial Statements

"...We have been able to do so many different tight specifications coating with Tecport's system that we have not been able to do so with other system... we are purchasing another chamber this year."

"...phenomenally completed within 1 week after delivery and ready for production within 2 weeks..."

"...the Tecport's chambers have increased our production capacity by 100%...the yield improves from 60% to 98%..."

"...easy to control and accurate automatic pressure controller to maintain constant pressure throughout the process..."

"...their touch screen computer control is definitely user's friendly ... allowed us to familiarize the operation of the new system within days, not weeks..."

