

1200-PO

HIGH VOLUME THIN-FILM DEPOSITION SYSTEM

1200-PO

UNMATCHED COATING SYSTEM PERFORMANCE

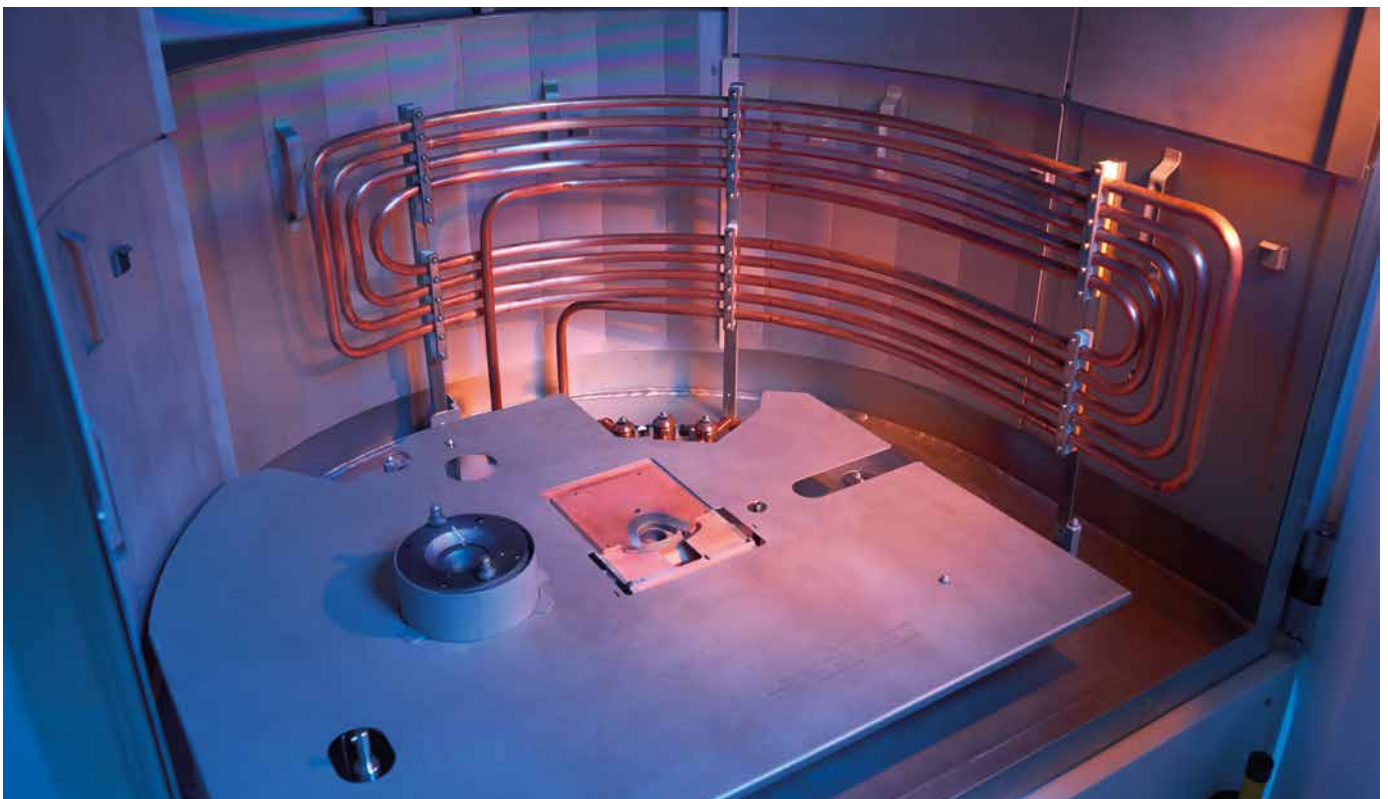
Repeatability and reliability are two key performance metrics that are essential to any precision optics coating operation. When coupled with the highest level of process automation, the path is paved for optical coating success.

Satisloh has a long history of innovation in the field of precision optics. As a global provider of Optical Manufacturing Solutions, PVD evaporative thin-film equipment is an essential component for any optics production facility. From deep UV to the IR, the 1200-PO is prepared to deliver uncompromised productivity 24 hours per day, seven days per week.

The 1200-PO is available with an array of customer configuration preferences including high

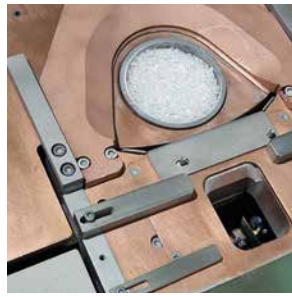
material capacity electron beam gun options, ion or plasma assisted deposition, innovative planetary or dome designs, low or high-power thermal sources, multiple substrate heater configurations, and high-performance pumping package options.

- **Repeatable** coating results
- **Reliable** machine performance
- **Productive** coating volume throughput

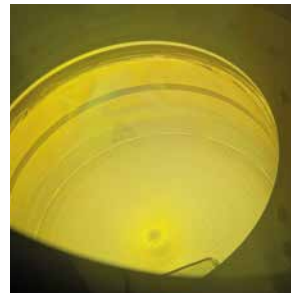




Planetary with customizable substrate holder design



Electron beam gun with wide variety of choices: Ferrotec 2CK, 3CK, 4CK, and 5 CK options



Maintenance-free ICP (RF) Plasma source producing neutralized plasma, suitable to be used with any gas



Planetary heater

FEATURES + BENEFITS

- Flexible configuration options for the efficient processing of glass, polymer, crystalline and metal optics
- Advanced coating run data logging, trending, recovery, and automated MES reporting capabilities
- Precision control substrate heating and chamber venting profiles for the management of temperature sensitive substrates
- Reduced system operating costs through innovative energy saving features and component designs
- PM operator prompts, user defined security levels, automated leak rate testing and vacuum gauge auto calibration
- Proactive integrated features such as onboard electrical supply phase monitoring, UPS backup for proper controller shutdown in cases of power interruption, fully automated coating process recovery after a power interruption, and an optional integrated electrical meter for kWh machine energy consumption measurement
- Unsurpassed coating system productivity for high volume applications where the number of coating cycles produced per shift is essential
- A full R&D center for process development and QC testing to prepare for FAT and SAT customer requirements
- MES-360 Lite included, provides daily reports using pre-established KPI to track machine utilization, production throughput, and top five errors
- Powerful Satisloh software control package with user-friendly intuitive graphical display for continual visual operating status overview

Planetary

- Physical thickness coating uniformity deviation less than 1% over 383 mm (15 inch) DIA planet achieved regardless of evaporation material and deposition rate
- Same coating uniformity regardless of EBG / IG / Plasma source configuration

Electron Beam Gun (Temescal)

- Deposit up to 1-micron SiO₂ with less than 1% uniformity deviation from single pocket with model 3CK (standard configuration 6x 28cc, customizable)
- Deposit up to 3-micron SiO₂ with less than 1% uniformity deviation from single pocket with model 5CK (standard configuration 8x 100cc, customizable)

Plasma Source (CCR-Copra IS400)

- Excellent coating densification. Refractive index of TiO₂ = 2.46 @ 520nm without absorption
- Cold plasma suitable for polymeric substrates. Substrate temperature increase due to plasma is less than 2°C at precleaning settings and less than 50°C at maximum IAD power settings

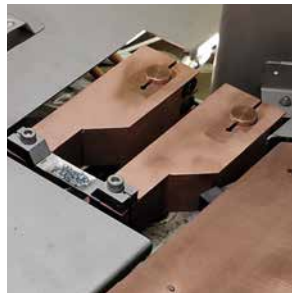
Planetary Heater

- 300°C on substrates in 15 minutes with a peak energy consumption of only 6.4 kW
- Selective heating on substrates
- Average power during a 60°C heating cycle as low as 0.5 kW





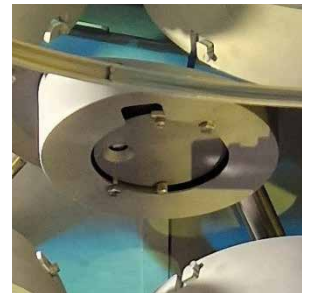
Cryo pump



High power thermal source



High power hollow cathode ion gun,
low maintenance required



Multiple quartz crystal head

Cryo-pump (HSR – Velco 630 HP)

- Nominal pumping speed: 48200 l/s for water vapour, 18000 l/s for nitrogen
- Effective in-chamber pumping speed: \approx 4800 l/s
- Nominal capacity: 15000 bar/l for Nitrogen

High power thermal source

- Water-cooled thermal source for metal evaporation
- Up to 600A deliverable current

High power hollow cathode ion gun

- Efficient coating densification. Refractive index of TiO₂ = 2.40 @ 520nm without absorption
- Suitable for long runs with 100% Oxygen

Multiple quartz crystal head

- Up to 12 quartz crystals available
- Predictive crystal switch based on layer thickness

Other components

- Diffusion pump
- Preliminary pumping group, available also in dry version
- Meissner trap
- Dome substrate holder

OPTIONS

- Ringless full dome or segmented (six sectors) dome
- Planetary system (5 planets)
- Flip-over system for double-sided processing
- Hollow cathode Ion Gun
- ICP (RF) Plasma Source
- Wide variety of EBG source
- Cryo pump
- Dry preliminary pumping group
- Multiple quartz crystal head
- Water-cooled thermal source
- Portable degassing system
- Ultrasonic cleaning system
- Hydrophobic and oleophobic topcoatings
- Consumables

TECHNICAL SPECIFICATIONS

Dimensions (wxdxh)	2171 x 3145 x 2440 mm / 86 x 124 x 96 in
Materials	plastic, glass and IR optics
Weight	3637 kg / 8018 lb
Planetary capacity	5 planets- 15 inch diameter each
Capacity (ringless dome)	up to 209 lenses at \varnothing 70 mm

All technical data subject to change without notice. Verify details with Satisloh.

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