

CITATION I™

Precision Optical Coating Systems



Discover the Key to Precision Optics.

Supporting the Optics Industry for nearly two decades:

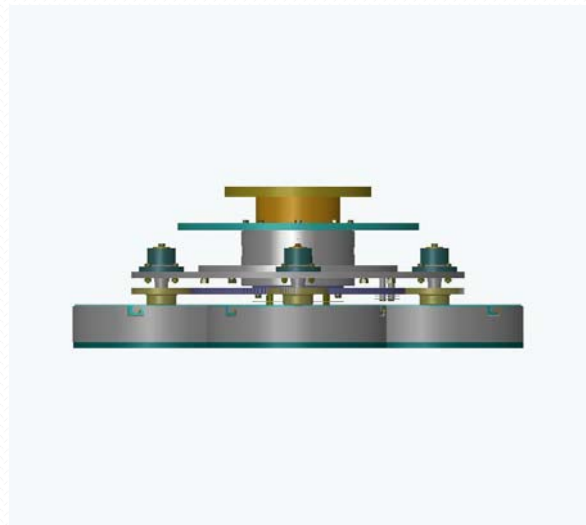
VPT's **CITATION I™** family of Precision Optical Coating Systems has been supporting many major worldwide Corporations and Government entities' capability, growth, and programs for nearly two decades. The core technology implemented in these systems is based on over 100 man-years of experience designing and manufacturing Optical Coating Systems configured for a broad range of coating applications. To date, hundreds of systems have been installed worldwide and have earned the reputation of excellent, reliable systems that produce superior coating results.

Flexible Configurations:

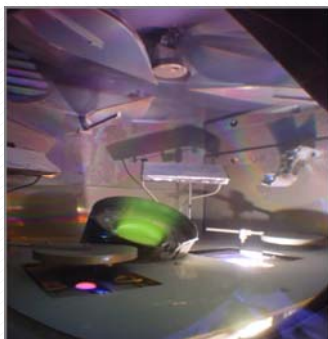
CITATION I™ Systems are each carefully tailored to support your specific coating application and production requirements.

Configuration options include Thermal Evaporation, Electron Beam Evaporation, and Electron Beam with Ion Assist, and Sputtering. Both crystal and automated optical monitoring for high accuracy and tight coating specifications are available. Substrate fixturing is available in single rotation, planetary, calotte, flip planetary, and unique arrangements for specific requirements. All systems are designed to maximize coating uniformity and production throughput. **CITATION I™**

Systems have supported a wide range of coating applications to include anti-reflective and highly reflective coatings, edge filters, beam splitters, optical filters, laser diodes, polarizers, gain flattening filters, and other complex non-quarter wave designs including low stress and high laser damage threshold coatings.



Performance and Reliability:



VPT recognizes that user-friendliness and reliability of Optical Coating Equipment is paramount to your success. The **CITATION I™** Family of Systems incorporate proven design features based on decades of experience that produce exceptional results with easy to use software and dependable run-to-run consistency. VPT strives to continuously obtain customer feedback from coating engineers, operators, and maintenance personnel to improve design features that will minimize system downtime and increase overall productivity.

All **CITATION I™** Systems incorporate subsystem equipment from major component manufacturers such as [Telemark](#), [Helix Technology](#) (Brooks), [Inficon](#), [Granville-Phillips](#) (Brooks), and [Veeco](#) (ion sources) to name a few. This allows our customers to benefit from the depth of VPT and its vendors for the availability of service and spare parts.

All **CITATION I™** Systems are easily integrated into your in-house networks using Ethernet connections on the Windows® platform.



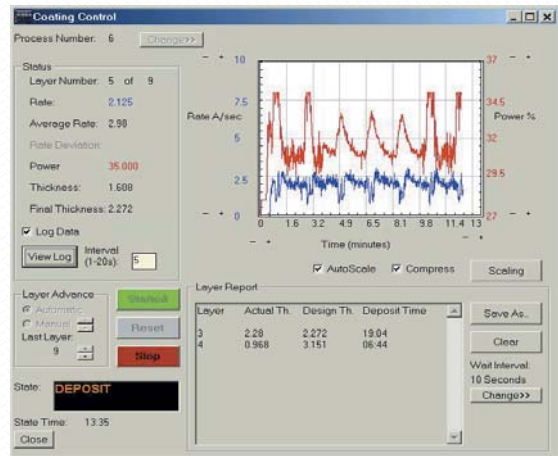
Coating Process Capability and Support:

The **CITATION I™** family of systems includes optional process development, system calibration, film characterization and uniformity adjustment to less than 0.5%.

They can be delivered with multiple, fully developed, production-ready coating processes, pre-programmed to minimize system downtime between production changeovers and to maximize run efficiencies and product yields. Calibration of the process is so consistent that new designs may be supplied to the operator from a remote site with the results from a test run analyzed and a small adjustment in calibration made before final production.



Designed for run-to-run repeatability and to deliver excellent results after a minimum number of test coatings, The **CITATION I™** lends itself to a fully automatic operation reducing time, manpower, and costs - even with high layer counts and complex layer stacks.



CITATION I™ Base Systems and Options

Chambers	CITATION I™ 36-inch Precision Optical Coater CITATION I™ 45-inch Precision Optical Coater CITATION I™ 52-inch Precision Optical Coater CITATION I™ 64-inch Precision Optical Coater CITATION I™ 72-inch Precision Optical Coater CITATION I™ 80-inch Precision Optical Coater CITATION I™ 100-inch Precision Optical Coater Custom sizes are available on request. 304L SS, Water cooled, Ultimate leak rate $\leq 1 \times 10^{-8}$ atm-cc/s
Conventional chamber diameters range from 36 to 100 in. (Diameters as small as 30 inches and as large as 120 have been delivered.)	
High Vacuum Pumping	Single or Multiple Cryopump configurations Single or Multiple Diffusion Pump configurations Closed-circuit Meissner trap
Rough Vacuum Pumping	Rotary vane pump Roots Blower Optional Dry Pump
Substrate Fixturing (see also the Substrate Fixture brochure)	Single rotation Flat Planetary rotation Optional single and multiple dome configurations Optional offset planet configuration (large substrate) Optional counter-rotation configuration (large substrates) Optional flipping planet configurations
Substrate Heating	Front side quartz lamp assembly(s) Optional back side Calrod® heaters
Deposition Sources	Single and Multi-pocket Electron Beam source(s) High current Thermal source(s) Magnetron Sputtering source(s)
IAD Sources	RF Plasma Ion Source Package End-Hall Ion Source Package
Layer Thickness Monitoring	Physical - Quartz crystal (numbers and locations as needed) Optical - VPT VLOM1 Optical Monitoring System , reflectance and transmission operating modes
Control Systems & Automation	PC / PLC platform with RSView 32 HMI operator interface VPT's DesignLink process control software package
Process Gas	Single channel O ₂ pressure control Multi-channel flow control
Utilities (for CITATION I™ 45)	Electrical: voltage as required, 3 Phase, 40 kVA Air: 80 – 90 PSIG Water: 20 GPM, 60 – 70 degrees F

Many more details available at www.vptec.com