

SOC Coatings for Space Flight Hardware

Surface Optics Corporation (SOC) is an employee-owned San Diego company with 20 years experience in design, development, and application of precision coatings on critical spaceflight hardware.

Electron Beam, Resistive Source and Ion Assisted Deposition (IAD) of metallic and dielectric films. Unique coating chambers and configurations to accommodate large substrates. All processes **Scalable**.

2,000 sq.ft. cleanroom (ISO Class 7) for cleaning, handling, and coating. Capability to process roll to roll film in a rewinder cleanroom (ISO Class 5).

Space Flight Heritage

SOC has safely processed hundreds of flight reflectors through our Coating facility. We have a full capability to address unique hardware

- ✓ Mechanical design
- ✓ Fabrication
- ✓ Proof-loading
- ✓ Complete handling plans.

Examples of some of our most complex Programs: Kepler, AMD, NIF, WMAP, Chandra, NuStar

AS9100 and ISO9001 Registered

Surface Optics quality system has been fully documented and implemented. It is maintained as needed to meet the requirements of our Company vision and governing policies. Surface Optics has adopted a process-oriented method of management. This approach emphasizes the importance of continuous improvement and understanding, meeting and integrating customer requirements



1.5m Keplar Primary Mirror for Ball/NASA

Key Coating Technologies

- ✓ **Programmable translating source:** Uniform deposition of large apertures
- ✓ **Multisource ebeam evaporation:** Reflective & Transmissive Coatings, optical, IR, RF
- ✓ **Multihead Ion Assisted Deposition:** Index control, durability
- ✓ **Resistive Source Deposition for dielectric layers:** Mechanical protection, stress and emissivity management
- ✓ **Reflective Coatings:** VDA and protected Ag with tailored thermal control properties

3m Vacuum Chamber



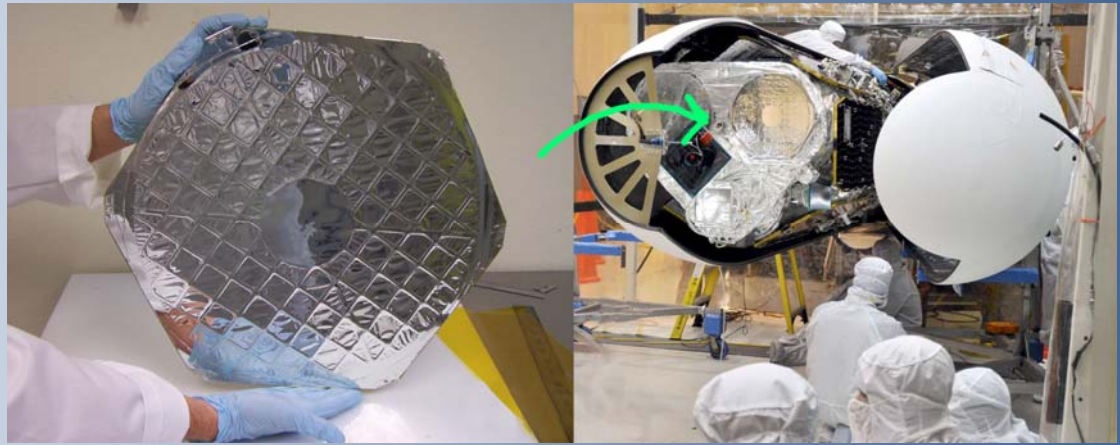
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About Us

Surface Optics Corporation (SOC) has a unique position in the thin film coating industry: small & large vacuum chambers with supporting ISO Class 7 clean room facilities. SOC has over 25 years of spaceflight hardware coating heritage with the ability to support custom one-of-a-kind coating solutions as well as the ability to scale up to high volume production work. SOC's Coating labs are fully equipped to provide for the most stringent coating needs with an adjacent world class Measurement laboratory to validate coating specifications.



Nustar X-ray Telescope

Thermal Control Coating Capabilities

- ✓ Composite substrate preparation
 - Epoxy resin washcoat
 - Thermally condition
 - Gritblast
 - Matte finish (BR127 typical)
- ✓ Measure resin surface prior to coating
 - Measure Specularity on reflector surface using SOC handheld spectrometer
 - Measure DC resistivity to ensure electrical isolation
- ✓ Vapor Deposited Aluminum (VDA) with low solar absorptivity (α), in correct thickness for lowest op. frequency
- ✓ Overcoat (SiO_x or SiO_2) in correct thickness to yield desired value of emissivity (ϵ)
- ✓ Measure RF Conductivity, α , ϵ , and Specularity on witness coupons, and coated reflector (if desired)

1.2m AMD Mirror, NG-Xinetics



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