For more than 50 years, Harris has provided high-performance optical components and assemblies for the world’s most sophisticated ground- and space-based observation systems. Today we are the fabricator of choice for large, high-precision products that meet our customers’ most rigorous requirements.

Harris provides solutions for high-performance systems, including:
- Ground- and Space-based Telescopes
- Solid and Lightweight Optics for Autocollimating Systems
- Lightweight Fast-steering Mirrors
- High-energy Laser Optics
- Optical Test Systems
- Relay Mirrors
- Observation and Vacuum Compatible Viewing Windows
- Grating Substrates
- Inspection Instruments
- Interferometers

Harris provides optomechanical design, optical fabrication, test, and assembly capabilities for precision optics solutions and systems. We specialize in the custom fabrication of large optics up to 3.5 meters. For more than 50 years, we have fabricated large optical components, including both lightweight and solid mirrors in most geometric shapes, to meet low surface microroughness and tight surface figure error specifications. This experience, along with our rigorous metrology and testing program and our state-of-the-art in-house facilities, enable us to meet demanding quality and delivery requirements.

Meets the most demanding requirements for spatial frequency, mounting, and application-specific needs
Fabricates cost effectively with Harris’ end-to-end deterministic capabilities
Provides surface finish to less than 2 nanometer RMS on glass and glass ceramic materials

Precise Optics And Assemblies
PROGRAMS OF NOTE

Chandra X-ray Observatory

James Webb Space Telescope

Wide Field Infrared Survey Telescope

Large Synoptic Survey Telescope

Thirty Meter Telescope International Observatory

DigitalGlobe's IKONOS, Quickbird

GeoEye-1, and WorldView-1, -2, -3, -4

Lawrence Livermore National Laboratory National Ignition Facility

KEY CAPABILITIES
- Polish aspheric, spherical, and flat surfaces in glass, glass ceramic, and crystalline materials up to 3.5 m with surface figure quality less than 10 nm RMS
- Process both lightweight and solid mirror configurations
- Employ state-of-the-art deterministic finishing systems, including ion beam figuring, Magneto-rheological Finishing, and small tool processing
- Provide surface microroughness less than 2 nm RMS on glass and glass ceramic materials
- Meet demanding requirements for spatial frequency, mounting, and other application-specific needs
- Complex part geometries can be machined by computer numerical control systems

SPECIALIZED TEST SYSTEMS
- Ritchey-Common test facility for full-aperture flat optics testing up to 1.8 m in diameter
- Numerous large vertical test towers
- 0.9 m aperture Fizeau interferometer system
- Capability phase measuring interferometers up to 0.6 m aperture

Harris provides precision optics for some of the world’s most prestigious observatories and telescopes.

TECHNOLOGIES AND PROCESSES

Ion Beam Figuring – Removes material at the atomic level, converging the optical figure to specification. This provides deterministic processing and exceptional edge control for segmented and full-aperture systems.

Magneto-Rheological Finishing – Provides deterministic finishing and figuring to meet the most stringent requirements.

Small Tool Processing – Processes surfaces to optical surface figure to within a few microns.

Specialized Coatings – Provides high-reflectance protected silver and aluminum coatings with low-stress and high durability.

Testing and Metrology – Accommodates optics as large as 3.5 m with ASC 9100 / ISO 9001:2008 certified accuracy to less than 10 nm RMS.

Simulation of Space Environments – Compensates for gravity and vacuum from 300° K to 30° K.

Assembly Facilities – Provide clean environments using certified, experienced professionals.

About Harris Corporation
Harris Corporation is a leading technology innovator, solving customers’ toughest mission-critical challenges by providing solutions that connect, inform and protect. Harris supports government and commercial customers around the world. Learn more at harris.com.

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