

# Precision Metal Optics



Optical surface design to meet customer

prescription requirements or manufacturing

Optimization

Optical mechanical design

Manufacturing process development for exotic

materials, coatings and assembly

Finite element and optical design analysis

General Dynamics Mission Systems designs and manufactures custom precision metal optical components and optical assemblies for commercial, defense and space-based applications. We provide end-to-end design, fabrication and testing of beryllium and aluminum optics ranging from single- and multi-faceted scan mirrors to plano and aspheric mirrors to complex telescope assemblies.

General Dynamics Mission Systems designs and manufactures a full portfolio of high-performance electro-optical/infrared (EO/IR) systems and components that provide our customers the clarity, accuracy and reliability to successfully complete their mission.

## Applications

- Collimators
- Telescopes up to 1.5 meters
- Spectrometers

# Precision Metal Optics

## Manufacturing

- Substrate fabrication, including turning, milling and electrical discharge machining (EDM) for surface geometries and lightweighting
- Optical finish
- Single point computer numerically-controlled (CNC) diamond turning
- Machine lapping and grinding
- Conventional polish

## Assembly

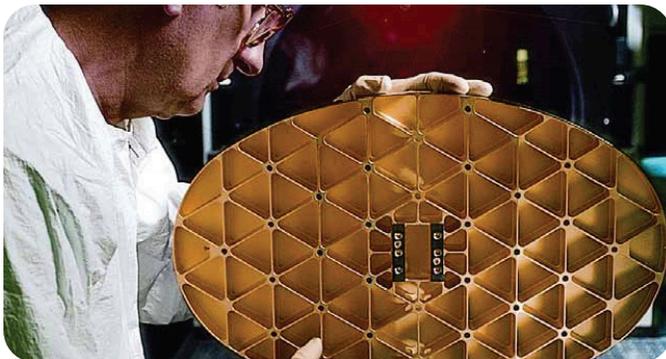
- Prototype development
- Laminar flow booth assembly stations
- NASA-qualified electronics chassis build-up

## Quality Assurance and Metrology

- Interferometric and electronic testing
- Static and in-situ metrology

## Product Specifications

- **Scan Mirrors**
  - Single- and multi-facet
  - Nickel (Ni) plated Beryllium (Be) and Aluminum (Al)
  - Dynamic distortion compensation
  - 1-2 arc second apex angle error
  - Low scatter polish
- **Plano Mirrors**
  - Up to 30" diameter
  - Rectangular, elliptical, circular
  - 1/12 wave irregularity
  - Low scatter polish
  - 15Å RMS
  - 20/10 scratch dig
  - Temperature testing capabilities
- **Aspherics**
  - Up to 24" diameter
  - Conics and generalized aspheres
  - 1/10 wave irregularity
  - 25Å RMS
  - 40/20 scratch dig
- **Assemblies**
  - Telescopes
  - Collimators
  - Roof – mirror assemblies
  - Spectrometers
  - Forward looking infrared systems



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