

Imaging Solutions

for Aerospace and Defense

Navitar Imaging Solutions are driven by the sophisticated performance requirements and innovative applications of our customers.

Pushing the limits within their industries, these customers require ruggedized solutions with tight optical tolerances that can withstand variations in extreme temperatures and environments.

Navitar has the design expertise and cutting-edge manufacturing technologies to meet these needs.

AUTONOMOUS VEHICLES

ENTERPRISE DRONES

SECURITY

SURVEILLANCE

UNMANNED AERIAL

R & D

SPACEFLIGHT



Navitar, Inc is ITAR Registered and ISO9001:2015 Certified

Industry Experts

with Proven Results

Navitar has been designing and manufacturing lenses for NASA, the U.S. Department of Defense, and industry leading aerospace and defense OEMs for over fifty years.

In 1960, Navitar produced the Elgeet-Navitar 8mm F1.5 wide angle lens for TIROS-1, the world's first Television and Infrared Weather Observation Satellite.

We designed custom projection lens assemblies for NAVAIR to guide aircraft launch and recovery systems aboard Naval aircraft carriers.

Navitar machine vision lenses can be found within unmanned aerial systems monitoring stages of rocket launches, including plume, trajectory and debris upon liftoff.

We maintain tight coordination between design and manufacturing tolerances and customer requirements to ensure final system performance matches initial design goals.

Vertically Integrated

for Optimum Quality

Our optical design experts are ready to discuss your specifications and develop a solution. We understand how crucial mechanical design is when space, weight and interface with other optics in a system must be considered. Our designers accommodate these requests and have experience working with both standard metals and specialty non-metallic materials.

We closely control the fabrication process and monitor manufacturing - from commercial to ultra precision tolerances - in our state-of-the-art, ITAR certified facility, and offer active lens-sensor alignment in our ISO Class 1000 clean room.

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High Magnification Designs

for Cutting-edge Research

Large FOV Imaging System

Navitar Resolv4K large FOV imaging system is being used by NASA for zero gravity experiments aboard the International Space Station (ISS) to demonstrate, test, and determine design parameters for the Ring Sheared Drop (RSD), intended for the Light Microscopy Module (LMM) aboard the ISS. The motivation for the RSD is the study of interfacial effects on the formation of amyloid fibrils in protein solutions. The Resolv4K, combined with a Navitar 10X HR microscope objective, provided the required optical parameters and DOF, and captured the entire FOV. The motorized unit is controlled from an earth based lab with an eight second delay in the signal due to the travel distance to the ISS.

[Resolv4K - 10X Microscope Objective - Large FOV - NASA - ISS](#)

Zoom Lens System for Increased Measurement Accuracy

Navitar Zoom 6000 high magnification lens system is being used aboard the International Space Station (ISS) to provide increased magnification of a directional solidified succinonitrile-camphor sample and improve accuracy of measuring dendritic side branch spacing and amplitude. The Directional Solidification Insert (scientific collaboration with Iowa State University, Northeastern University and University Aix-Marseille) in the DEvice for the study of Critical Liquids and Crystallization (DECLIC) facility is built and operated by Centre National d'Etudes Spatiales (CNES).

[Zoom 6000 - Increased Magnification - Improved Accuracy - Measurement - ISS](#)

High Magnification Motorized Zoom Lens System for Reliable Testing

Navitar motorized 12X Zoom lens, as part of a sophisticated probe test platform being used at NASA's Jet Propulsion Laboratory (JPL), has improved the quality and accuracy of high reliability chip testing. Chips are typically deployed in harsh atmospheres such as deep space or within weapons. The probe tester is designed to be deployed in near-0 vacuum. The motorization of the probe tips, chip positioning, zoom and focus functions are required since the operator does not have access to these features from the chamber.

[12X Zoom - Motorization - Chip Testing - Measurement - NASA - Jet Propulsion Lab](#)

Proudly having worked with:

**NASA - International Space Station - NAVAIR - U.S. Department of Defense
U.S. Army - U.S. Navy - U.S. Airforce - Top U.S. Aerospace Companies**

Advanced Technology

for Extreme Environments

Pixelink Camera Technology and NASA Orion Spacecraft Project

NASA selected Pixelink industrial camera technology as the best solution for the demanding and rigid performance specifications of the Optical Navigation Systems of the Orion Multi Purpose Crew Vehicle (MPCV) spacecraft project. The navigation camera system, positioned in three locations on the Orion spacecraft, captures images of the Earth and Moon during launch and re-entry, enabling the spacecraft to independently calculate its position and velocity in cis-lunar space. This is critical for crew members onboard when adjusting their entry flight path angle for return to Earth under loss of communication and/or ground based navigation conditions.

The Pixelink cameras were tested for vibration, temperature variances, radiation, shock, and vacuum pressure. With ruggedized packaging and housing, the units successfully withstand extreme environmental conditions of spaceflight.

5 MP CMOS - 1" optical format - USB 3.0 Camera - Spaceflight Launch and Re-entry Image Capture



Working Together, Solving Problems

and Designing for the Future

Our Capabilities and Expertise

- optical, electrical and mechanical design
- design optimization, discovery and feasibility studies
- detailed tolerance analysis for manufacturability
- prototype manufacturing to high volume production
- build to spec and build to print
- precision assembly and testing
- active lens-sensor alignment
- stray light analysis and athermal designs

Design Elements

- optomechanical and optoelectronic components
- doublet, triplet and multi-element designs
- custom housings and mounts
- private labeling, custom kitting and packaging

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