Our rugged optical solutions provide the capabilities our customers need to succeed in their missions across high-demand domains. Applications include: infrared countermeasures that enhance safety for fixed- and rotary-wing aircraft; the Integrated Digital Vision System, enabling soldiers to stay connected and aware in visually degraded environments; and a distributed aperture system that keeps fast-jet pilots informed in unprecedented ways. Our products must perform with the highest integrity in extraordinarily hostile environments, including the unique hazards of deep space.
Manufacturing core competencies

When customization is critical, count on Rockwell Collins. Some of the world’s most demanding, specialized missions have relied on our ability to design and manufacture customer-specific optical assemblies.

Optics fabrication
- CNC glass shaping
  - Spherical and aspherical
  - Truncated and off-axis segments
  - 0.25-inch diameter up to 12 inches
- Precision optical components
  - Sub-20th wave capabilities
- Optical coatings
  - AR, bandpass and reflective in visible-MWIR spectrum
- Lightweight mirrors
- Super polish for metallic mirrors
- Diamond turning, including hybrid diffractives

Assembly
- Precision optical/mechanical assembly
- Precision electro-optical assembly
- Clean-room facilities
- MIL and space qualified
- Electronic assembly

Testing
- Visible/IR interferometry
- MTF/automatic test equipment
  - Visible and infrared
- Profilometry
  - Surface contour
  - Surface roughness
- Environmental test facilities
- PCBA test
- Micro display calibration and test
- Night-vision/thermal imager dark room

Wearable display integration
- Advanced, see-through optics
- Revolutionary, near-eye display
- Uniquely large eye box and eye relief
- Ultra-thin, see-through lens
- Ideal transmission for augmented vision, tactical and training applications
Glass fabrication
- CNC work centers for:
  - Grinding and shaping
  - High-speed polish
  - Asphere polish
  - Ultrasonic sawing and truncation
  - Lightweighting
  - Conventional spindle polish

Infrared glass fabrication
- CNC shaping
- CNC spherical polish
- Single-point diamond turning
  - Aspheres
  - Diffractives
  - Off-axis and free-form
- Materials
  - Silicon
  - Germanium
  - Multispectral zinc sulfide
  - Zinc selenide
  - Chalcogenide glasses
  - Al, Cu and nickel

Thin film coating
- Deposition of dielectric and metallic materials
  - Evaporative ebeam and resistive sources
  - Ion assist
  - Optical and crystal monitors
  - UV to MWIR
- Precision AR, filters, mirrors and beam splitters

Optical assembly
- Retention
  - RTV/epoxy
  - Conventional retainers
  - Flexures
- Thermal metering
- Precision alignment
  - Air bearings
  - Mechanical and optical runout
  - Interferometric
  - DT tooling for precision mirror and lens positioning
  - Compensator adjust
- Sensor and microdisplay integration
- Autocollimating telescopes
- Assembly clean rooms and flow benches

Metrology and test
- Metrology
  - Visible and infrared interferometers
  - Aspheric profilometry
  - Optical profilometry
  - Spectrophotometry/FTIR
- Optical test
  - Visible and infrared MTF
  - Encircled energy
  - Transmission
  - Distortion/EFL
  - Thermal focus and boresight
  - Null testing

Environmental test
- Thermal and humidity
- Vibration
- Coating witness testing
  - Salt fog
  - Adhesion
  - Durability
  - Solubility
Customer solutions

Whether your domain is air, sea or space, Rockwell Collins can bring innovative optical capabilities to your mission.

Surveillance and reconnaissance

Our optics meet day and night vision requirements for sustained surveillance and reconnaissance across platforms in air and space. Rockwell Collins designs, develops and produces precision optics for distributed aperture sensors on the F-35 program. These sensors enable pilots to “see through” their aircraft for 360-degree, spherical situational awareness. The sensors also provide a range of capabilities, including missile detection and tracking. Over our 10-year program involvement, we provided more than 1,600 optical assemblies to the customer.

Infrared countermeasures

Because they can thwart increasingly common attacks by confusing the guidance systems of surface-to-air missiles, airborne countermeasures are becoming must-have technology for fixed- and rotary-wing aircraft. Rockwell Collins has more than 20 years of experience in this field.

Rockwell Collins designs, develops and produces the critical optical assemblies for the Miniature Pointer Tracker used in its Large Aircraft Infrared Countermeasures (LAIRCM) system.
Space exploration

Rockwell Collins has been playing a crucial role in the exploration of Mars. Our lens assemblies have been part of every Mars rover. The NASA rover Curiosity has traversed parts of the planet, beaming back scientific data.

Assisting in the rover’s movements are eight hazard-detecting cameras, as well as four navigation cameras used to provide broad landscape images that help Curiosity maneuver to points of interest. Our lens assemblies serve as the “eyes” on all 12 cameras, and are one of the few features on the rover that haven’t undergone major design changes from one mission to the next.

When NASA launched its Juno Jupiter Orbiter 2011 mission, its spacecraft’s on-board camera (called Junocam) featured a wide-angle lens that Rockwell Collins designed and built. Withstanding intense radiation along the journey through space, the lens has captured stunning color images with unprecedented clarity.

Navigation

Rockwell Collins designs, develops and produces the optical assemblies for the highest-precision star trackers used in civil, commercial and defense satellite systems. Designed to work in the most severe conditions, our optical solutions are held to the most stringent standards in the industry.
High-fidelity training solutions

Rockwell Collins reliably delivers the unmatched optical realism and seamless integration that enable pilots to train with the same visual experience as in the real aircraft helmet.

F-35 Lightning II pilots can train with the world’s most advanced fighter training system, which includes our StrikeEye™ Gen III simulation helmet-mounted displays.

Our commercial SimEye SX50T II/IIE and wearable products are suitable for use in the highest-fidelity mission training, fast-jet and rotary-wing cockpit simulation applications.

Pilots on F-15, F-16 and F/A-18 aircraft train with our simulated Joint Helmet Mounted Cueing System (JHMCS), providing the most realistic training experience.
Battlespace-proven solutions

Warfighters operating in the world's most hostile and visually degraded environments are using Rockwell Collins wearable vision systems for greater situational awareness.

Our Integrated Digital Vision System (IDVS) fuses multispectral and night vision sensors with other data sources to provide head-up, eyes-out augmented visualization. IDVS provides the ability to “see through” visually degraded environments and improves the warfighter’s mission effectiveness, survivability and lethality.

The lightweight MicroView™ MV35XC helmet-mounted display improves combat effectiveness with the capability for remote viewing of external video sources.
To learn more about how our optronics can help take your mission precisely where you want it to go, contact your Rockwell Collins representative.

Building trust every day.

Rockwell Collins delivers innovative aviation and high-integrity solutions to commercial and government customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

For more information, contact:

Rockwell Collins
2752 Loker Ave. W
Carlsbad, CA 92010
+1.760.827.8383
email: optronics.sales@rockwellcollins.com
www.rockwellcollins.com