

TACTICAL SOLUTIONS



For more than five decades, Ball Aerospace has been an industry leader in the design and development of high impact, discriminating technologies that ensure warfighters can go forward bravely and return home safely. Our solutions enhance the performance of military platforms, from aircraft and land vehicles to ships and satellites, to give warfighters the advantage they need to take action, identify targets and defend against evolving threats.



GO BEYOND WITH BALL.®

Overview

We are dedicated to helping the nation place critical hardware into the field, close mission gaps and return actionable data with confidence by delivering advanced, reliable technology solutions across all warfighting domains. We specialize in four key mission areas:



**Platform
Survivability**



**Precision Strike &
Electronic Warfare**



**Real-time Intelligence,
Surveillance & Reconnaissance
(ISR) & Targeting**



**Resilient Network
Operations**

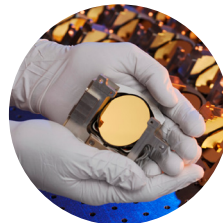
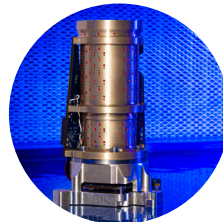


Platform Survivability

Ball improves the survivability of U.S. air vehicles through stealth technologies and resiliency of critical capabilities, ensuring warfighters maintain critical position, navigation and timing and identify emerging threats.

Core capabilities include:

- Communication, Navigation, Identification (CNI)
- Advanced survivable apertures and phased arrays that minimize platform detection
- Assured position, navigation and timing in degraded and denied environments
- Anti-Radiation / Homing (ARH) systems
- Direction Finding (DF) systems

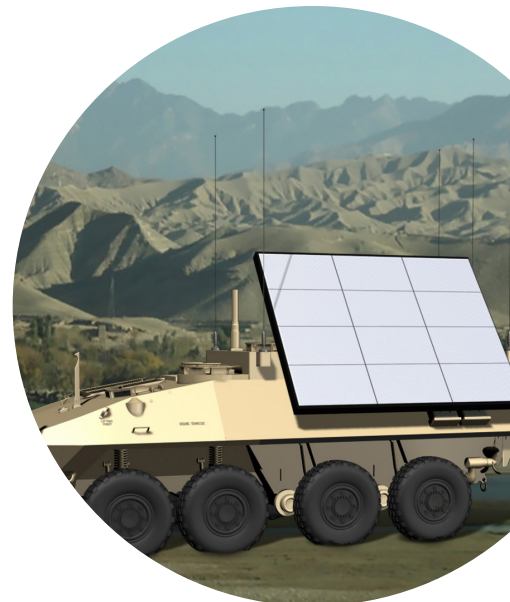


Precision Strike & Electronic Warfare

We are leveraging our expertise in radio frequency (RF), electro-optical (EO) and infrared (IR) capabilities to enable precision air, surface and ground-based strike capabilities and deliver electronic warfare (EW) systems that guarantee the free use of the electromagnetic spectrum while denying the same to our adversaries. We ensure weapon effectiveness with data link systems that don't compromise performance.

Core capabilities include:

- Conformal antennas for reliable communications
- High-temperature antennas for hypersonic applications
- Electronic Protection (EP) systems
- High-power electronic attack systems



Real-time ISR & Targeting

Ball is advancing the state of emerging imaging technology to deliver unparalleled situational awareness for real-time decision making and ensure accurate targeting across all environments while minimizing risk to the platform.

Core capabilities include:

- Increase strike effectiveness through multi-band and multi-mode EO/IR sensing
- Characterize and determine intent of possible threats
- Deliver precision tactical decision making with real-time geolocation information
- Increase flight safety and operational capability in degraded visual environments
- Deliver multi-band imagery in HD resolution
- Enable non-conventional imaging with Geiger-mode avalanche photodiode (GmAPD) camera systems



Resilient Network Operations

Leveraging more than five decades of antenna, RF and phased array expertise, we offer resilient connectivity solutions. These systems meet a breadth of warfighter needs – from enabling improved ISR and targeting to enhancing mission collaboration. Our solutions deliver resilient high data rate communications critical for the front line in support of current and future military needs.

Core capabilities include:

- Modular, scalable SATCOM flat panel arrays and terminal solutions for GEO, MEO and LEO operation
- Common Data Link (CDL) multi-beam flat panel arrays supporting existing CDL, Bandwidth Efficient-CDL and future networking waveforms
- High-bandwidth radar systems for national defense and weather applications
- Telemetry, Tracking & Control (TT&C) ground stations provide resilient C2 links for simultaneous multi-contact satellite operations in LEO, MEO, and GEO orbits
- Space-based communications antennas



Images (Facing Page, Top Right): Tactical Star Tracker; Fast Steering Mirrors; F-35 Lightning II.

Images (Facing Page, Bottom Right): Army Tactical Missile System (ATACMS); Tomahawk Missile; Artist's illustration of a large-scale phased array EW system.

Images (Top Right): Romeo Multi-Band Camera; Stalker Long-Range EO system; Degraded Visual Environment LIDAR; GmAPD

Images (Bottom Right): Ku/Ka SATCOM antennas; ground communications; Common Data Link system.

Who We Are

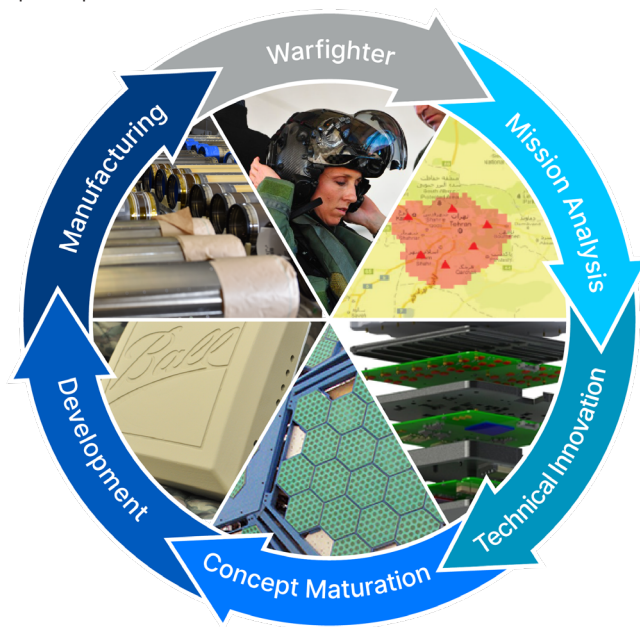
Ball Aerospace employs more than 5,200 people and has locations in Boulder, Broomfield and Westminster, Colorado; Greenbelt, Maryland; Dayton, Ohio; Albuquerque, New Mexico; St. Louis, Missouri; and Arlington and Chantilly, Virginia.

Our Approach

We bring our Ball culture and take a partnership approach to provide the best solutions to ensure our customers deliver on their mission. That means starting and ending every mission with the warfighter in mind – from mission analysis and modeling to rate manufacturing. It starts with our operational analysis team working closely with our customers and engineers to design, build and test systems that protect our warfighters, giving them the tools to be successful on the battlefield.

Once in operation, we deliver end-to-end manufacturing capabilities. With 500,000 gross sq ft of production, development and test space, we ensure our customers receive the high-quality solutions they need on time, every time. We produce thousands of units every year, maintaining a 99% stick rate.

- Deliver rapid prototyping and high-quality production with co-located design, manufacturing and test
- Offer lifetime product support with a suite of in-house manufacturing capabilities
- Offer cost-effective solutions by utilizing a robust supply chain and continuous application of lean-manufacturing principles to reduce cost



Community Involvement

Our employees excel in the fields of science and technology to serve their communities. From participating on industry working groups to donating dollars and hours to STEM outreach, Ball is committed to serving the larger aerospace community to ensure a better tomorrow.

- Classified/Unclassified Working Groups
- White paper contributions
- Veterans Ball Network (employee resource group)
- University advisory groups and senior projects

STEM Outreach

6,700+ Hours volunteered to STEM outreach*

14,700+ Students impacted through outreach*

**North America only*



Ball Aerospace

303-939-4000 • Fax: 303-939-6104

info@ballaerospace.com • www.ball.com/aerospace

Copyright 10/2021, Ball Aerospace

D3512