

**SMART  
AND TO THE  
POINT.**

# IRON BEAM™

The World's Leading C-UAS & C-RAM SHORAD HELWS





## Anchoring Defensive Stability and Resilience Against Large-Scale Aerial Saturation Attacks

As a revolutionary laser-based system, IRON BEAM delivers a paradigm shift in countering mass-scale UAS and RAM threats. Powered by a sustainable energy source, it ensures operational continuity via a virtually limitless magazine. This pinpoint directed-energy capability enables optimized munitions management across the entire air defense array, neutralizing high-volume saturation attacks while preserving costly kinetic interceptors for strategic threats – ensuring a smarter, more resilient, and sustainable defense posture.



**As a central component of Israel's multilayered air defense array, IRON BEAM is the world's first operational system of its kind, actively transforming air defense and the modern battlefield.**

### Multilayered Synergy: Optimizing GBAD Networks

Integration of IRON BEAM into kinetic Ground-Based Air Defense (GBAD) architecture optimizes the interception cycle. By utilizing the laser as the primary effector for low-cost, low-altitude threats, commanders can maintain deep magazines of kinetic interceptors – ensuring mission persistence and operational continuity during high-intensity saturation campaigns.

### Technological Dominance: Overcoming Environmental Challenges

RAFAEL's breakthrough in Coherent Beam Combining (CBC) and Adaptive Optics overcomes environmental effects that have historically plagued long-range laser systems. By synchronizing multiple laser sources into a single, high-density flux, IRON BEAM achieves coin-sized precision at 10 km. This ensures unprecedented beam stability and lethal effects within seconds, while minimizing power consumption.

### Multifunctional Beam Director: Sensor & Effector

The high-performance beam director also functions as a sophisticated electro-optical sensor, providing long-range target detection and classification. The beam director delivers real-time BDA and a precise visual aerial picture, supporting rapid engagement decisions and seamless coordination across the entire integrated defense network.



### Main Capabilities

- Counters Groups 1-3 UAS and RAM
- Engagement range of up to 10 km
- 360-degree azimuth coverage
- Real-time detection, tracking, and BDA
- Overcoming atmospheric disturbances using CBC and Adaptive Optics
- Deep magazine with continuous engagement capability



## Strategic HELWS Integration: The Operational Impact

In 2025, following years of development and operational testing, Israel became the first nation to field a major, laser-based defense system - IRON BEAM. Integrated with and complementing GBAD systems, it enhances multilayered air defense coverage, delivering high-precision, low-cost laser engagement. IRON BEAM shifts the global cost-per-interception paradigm and provides a validated operational model for future air defense deployments.

### Economic Superiority: Sustainable LCC

IRON BEAM dramatically improves defense sustainability by offering a significantly lower Life Cycle Cost as compared with kinetic alternatives. It eliminates the logistical burden of manufacturing, transporting, and storing explosive interceptor stockpiles - providing a cost-effective and scalable long-term national security strategy.



## Benefits

- Operational and defensive continuity under saturation attacks
- Deep magazine, no reload cycles
- Optimized interceptor economics for low-cost threats
- Standalone system or integrated with air defense network
- Open architecture design philosophy
- Operationally validated, meets Israeli Air Force requirements



## Laser-Based Target Neutralization



IRON BEAM: Ceremony for system delivery to IDF and IMOD