

Air Solutions Catalog



Elbit Systems™

Air Solutions Catalog

Elbit Systems Land specializes in the design, development, manufacture and integration of a high-performance comprehensive array of air-to-ground munitions and aerial self-protection systems for airborne platforms against multiple threat types. The combat-proven solutions feature sophisticated technologies and subsystems, providing enhanced operational capabilities while increasing safety and survivability. Elbit Systems Land world-class weapon systems and products have been qualified by the Israeli Air Force (IAF), US military and other NATO members.

Air-to-ground munitions

Short and long-range precision munitions and missile solutions with unique capabilities for accurate hits and effective neutralization of stationary and moving targets.

Elbit Systems offers high performance advanced standoff weapons to meet the critical needs of the modern battlefield for diverse missions and applications.

Aircraft protection

A world leader in expendable countermeasures and smart dispensing systems with decades of experience in the design and production of sophisticated, threat-adaptive aircraft protection systems

Photography credits:

Cover: Davidi Vardi. **14:** Avichai Socher (SPARC-2); Yissachar Ruas (SPARC-3/XM216). **Page 15:** Yissachar Ruas (Top right); Avichai Socher (SPARC-6). **Page 16:** Avichai Socher (FG-2 Dual Flare); Yissachar Ruas (FG-3). **Page 17:** Davidi Vardi. **Page 18:** Yissachar Ruas



Air-to-ground munitions

The operational requirements of the modern dynamic battlefield demand affordable, accurate, precision guided weapons. A center of excellence with decades of experience, advanced technologies and in-house capabilities, Elbit Systems Land offers combat-proven, rigid penetration general purpose (GP) bombs, guidance kits, supersonic missiles and rockets.

The next generation air-to-ground systems deliver precision-strike capability, operational flexibility, increased survivability and enhanced mission effectiveness against a wide range of targets. A comprehensive range of combat-proven precision guidance kits and high-performance advanced standoff weapons, meet the critical needs of the modern battlefield for diverse missions and applications, providing launch versatility, pinpoint accuracy and long-range target acquisition with minimal collateral damage.

Rampage

Air-to-ground long-range precise supersonic missile

An innovative solution based on advanced technologies, the Rampage long-range air-to-ground precision strike missile, offers high survivability and operational flexibility for maximum mission effectiveness. The fire-and-forget supersonic missile enables a salvo strike against high-value targets. The system features a solid booster, general purpose warhead and Navigation Satellite System/INS with robust anti-jamming capabilities. Compatible with a variety of aircraft, the Rampage features pre-programmable mission profiles or re-programmable in-flight capabilities. The Rampage has been battle-proven in demanding combat scenarios.

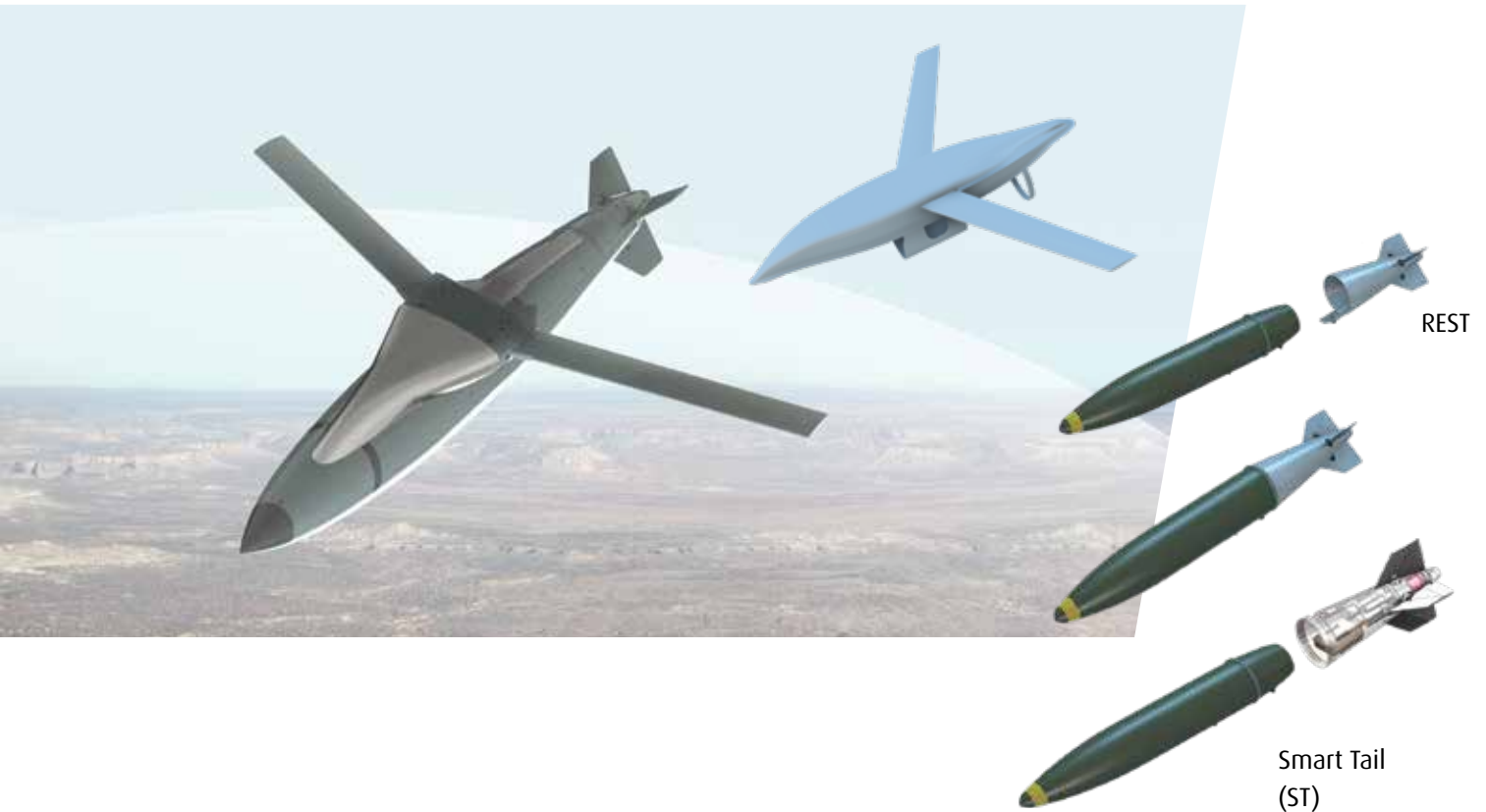


REST - Range Extension Smart Tail

Guidance kit for extended range precision strikes

The REST guidance kit is designed to convert standard general purpose and penetration warheads into a smart weapon system. By delivering autonomous operation, enhanced accuracy and extended range for heavy payloads, REST significantly upgrades the aircraft's weaponry.

- **Navigation and precision:** Utilizes INS/GNSS/EO Seeker for enhanced accuracy with anti-jamming capabilities.
- **Stand-off capability:** Deployable wings for extended range.
- **Compatibility:** Suitable for various Western and Eastern aircraft and warheads.
- **Aircraft integration:** Supports 1553 STD and standalone integration.



Lizard™

Modular guidance kits for general purpose bombs

A family of modular guidance kits, Lizard converts general-purpose bombs to precision-strike munitions with advanced target acquisition and engagement capabilities to seek and destroy a wide range of targets. The modular kits offer the option of laser seeker or dual mode (GPS/INS and laser) guidance and enable efficient interchange of seekers and warheads. The versatile Lizard systems are compatible with most aircraft, GP bombs and penetration warheads, delivering high accuracy with minimal collateral damage.



> Lizard™-3 Laser

Advanced laser guidance kit featuring IMU for proportional navigation, highly effective against moving targets (up to 100km/h).



> Lizard™-4 Laser and GPS/INS

All-weather weapon with a dual mode laser guidance kit including a GPS/INS for high accuracy. The autonomous weapon has an extended standoff range of up to 40km.



> Lizard™-5

IIR seeker for image navigation within large uncertainty and cloud coverage scenarios. The autonomous weapon has an extended standoff range of up to 40km.

Lizard™ Lite

Modular guidance kits for general purpose bombs

Fixed tail configuration, compatible with all seeker technologies including laser/dual laser and GNSS/IIR. Lizard Lite supports both Eastern and Western warheads and has a standoff range up to 20km.



GATR

Guided Advanced Tactical Rocket

An advanced 70mm laser guided rocket, GATR enables the operator to engage a wide array of targets with the effect of heavy missiles, delivering unmatched precision-strike capability at ranges of up to 10km. GATR is designed to significantly improve hit probability and reduce collateral damage with lock-on before launch (LOBL) capability, a crucial feature in crowded urban warfare scenarios. GATR is equipped with a warhead that can penetrate 20cm of reinforced concrete and an advanced electronic safe and arm fuze. By controlling the fuze delay time and trajectory shaping, GATR dramatically improves the in-room blast effect and hit-to-kill ratio. Designed for missions against stationary or fast moving soft or light armored targets, the system can be launched from Eastern and Western aerial platforms. The GATR has been battle-proven with successful launches within the Israeli Air Force's (IAF) attack helicopter fleet, showcasing its accuracy and effectiveness in penetrating high-priority targets.



MPR 500/1000/2000

Next generation multi-purpose rigid warheads

A family of combat-proven rigid penetration multipurpose warheads, the MPR delivers high penetration capabilities with a variety of 500, 1000 and 2000 lb. class warheads. The next generation surface attack warheads assembled with standard guidance kits, provide a very high reliability of more than 95% with low target engagement cost. Very close to no "J" effect guarantees a straight penetration path to the target. MPR warheads feature highly effective, advanced bombs with focused blast and high-density controlled-fragmentation effect for high kill probability and low collateral damage against a wide range of ground targets in open terrain.



› MPR 500

Fully compatible with the MK-82 variety guidance kits and standard fuzes. Certified by the Boeing company to be used with the Joint Direct Attack Munition (JDAM) guidance kits. The MPR 500 contains 26,000 controlled fragments and can penetrate four reinforced concrete walls or floors 200mm thick each, or 1m of reinforced concrete.



› MPR 1000

Fully compatible with the MK-83 general-purpose bomb in aircraft configuration, MK-83 variety guidance kits and standard fuzes. The MPR 1000 can penetrate 1.5m reinforced concrete.



› MPR 2000

Fully compatible with the MK-84 general-purpose bomb in aircraft configuration, MK-84 variety guidance kits and standard fuzes. The MPR 2000 can penetrate 2.9m of reinforced concrete.

MK-80 Family

General purpose warhead

Elbit Systems Land's primary air-to-ground GP bombs, the Mark 80 series includes three basic weight categories: MK-84 (1000kg), MK-83 (500kg) and MK-82 (250kg). Launched by fixed wing aircraft, the MK-8X family of bombs is effective against blast and fragmentation-sensitive targets such as buildings, troop concentrations and light armored vehicles.

All MK-8X GP bombs are compatible with a variety of fuzes and include both nose and tail fuze wells. The MK8x family of GP warheads can be fitted with guided or unguided kits for various operational roles.



Tailor-Made Warheads

One-stop-shop for integrated warheads

Incorporating unique knowhow and expertise, Elbit Systems Land designs and manufactures integrated warheads for various weapon systems, using a variety of cure-cast and melt-cast explosives for optimized performance. The tailor-made warheads are developed according to customer requirements, such as mechanical interfaces, performance and environmental conditions.

Our special facilities include design and simulation labs, test and validation equipment and full production capabilities for a range of warhead types, including shape charge, blast, fragmentation, penetrators, interception and multi-purpose warheads.



Fuzing Solutions

A full range of combat-proven fuzing solutions to meet customer operational needs and the requirements of new and existing weapon systems. Integrated with advanced technologies, the high-performance fuzes provide unprecedented flexibility, reliability and safety in compliance with MIL-STD-1316 and the highest quality standards.



› ID260MF Fuze Series

The ID260MF fuze series is designed for maximum functionality and hard target survivability and is compatible with a wide range of air-to-ground weapon systems. ID260MF fuzes are in operational use by the Israel Air Force and by other air forces worldwide. The series offers unique features and effective solutions for all fuzing requirements and applications in several standard versions. The fuzes feature a modifiable and upgradable communication protocol and customizable arm and delay times.



› Low Altitude Proximity Fuze 980LAPF/TA

A combat-proven proximity fuze that dramatically increases weapon effectiveness of high explosive bombs against soft and light targets. The 980LAPF/TA features a rapid impact backup operation mode and several independent safety features for enhanced safety and reliability. The system is compatible with a range of high explosive munitions and fits into a 3" nose GP bomb fuzewell.



› Small Fuze Units (SFU)

Electronic safe and arm (ESA)-based fuzing solutions for small air-to-ground munitions, designed for hard target environments without compromising reliability. The SFU fully complies with MIL-STD-1316 and STANAG 4187. The fuze has two standard configurations: Ø60mm x 110mm, 800gr and Ø50mm x 80mm, 450gr.



Aircraft Protection

A world leader in expendable countermeasures and smart dispensing systems, with decades of experience in the design and production of sophisticated, threat-adaptive aircraft protection systems, Elbit Systems Land offers reliable and effective solutions for high-performance defense applications.

The autonomous and modular precision missile protection systems are compatible with a wide range of aircraft and helicopters. Advanced and effective flares and decoy solutions increase flight safety and survivability against multiple threats and in various combat scenarios, day/night and in all weather conditions.

SPARCS-FLARES™

The high-performance advanced spectral IR decoys, offer a “one-flare solution” effective against all new and earlier generation air-to-air and ground-to-air missiles, for increased survivability and exclusive operational benefits. The spectral IR decoys offer high energetic protection with minimal rise time, high color ratio and obscurity (dark flare). The reliable and effective expendable countermeasures can be ejected from modern fixed-wing fighter aircraft, helicopters and transport aircraft.



› SPARC-1

A unique, small-size flare designed to provide protection and enhanced survivability for low signature aircraft with a limited payload, such as light helicopters and UAS.



› SPARC-2

A unique flare with two half-size pellets designed to enhance aircraft protection by loading double the number of flares in every dispenser. The flare has a double shot squib operated by two voltages.



› SPARC-3/XM216/MJU-78B

Spectral IR decoys, 1"x1", with a combat-proven record against the threat of advanced infrared heat-seeking missiles with dual-band target discrimination.



› SPARC-6

Spectral IR decoys, 2" x 1", with a combat-proven record against the threat of advanced infrared heat-seeking missiles with dual-band target discrimination.



› SPARC-26/50

A reliable and effective 26/50mm diameter advanced spectral decoy suitable for platforms adapted to Eastern countermeasure dispensing systems.



› SPARC-36

A reliable and effective 36mm diameter advanced spectral decoy suitable for Navy platforms adapted to round 36mm diameter countermeasures.

MTV Flares

MTV flares offer advanced protection against heat-seeking missiles for a wide range of aircraft and helicopters. The flares are fully compatible with all Western dispensing systems.



> FG-1 Mini Flare

A unique small-size flare designed to provide protection and enhanced survivability for low signature aircraft with a limited payload, such as light helicopters and UAVs.



> FG-2 Dual Flare

A unique flare with two half-size pellets, designed to enhance aircraft protection by loading double the number of flares in every dispenser. The flare has a double shot squib operated by two voltages.



> FG-3

Compatible in form and function to the M206, the FG-3 can be ejected from all Western dispensing systems, including ALE 40/47, M-130, WIZARDS, and others. The flare is equipped with a PSM (Pyrotechnic Sequencing Mechanism) to ensure aircraft safety and prevent ignition inside the magazine.



> FG-6

Compatible in form and function to the MJU-7, the FG-6 can be ejected from all Western dispensing systems, including ALE 40/47, M-130, WIZARDS, and others. The flare is equipped with a PSM (Pyrotechnic Sequencing Mechanism) to ensure aircraft safety and prevent ignition inside the magazine.



> FG-26/50

A reliable and effective 26/50mm diameter MTV flare suitable for platforms adapted to Eastern countermeasure dispensing systems.



> FG-36

A reliable and effective 36mm diameter MTV flare suitable for Navy platforms adapted to round 36mm diameter countermeasures.

Chaff

Protection against radar guided missiles

Providing combat-proven protection against radar guided missiles, Elbit Systems Land chaff cartridges can be deployed from all modern aircraft, helicopters and transport aircraft.



› Single chaff cartridge

Suitable for a variety of aircraft

› Chaff package

Customizable frequency range up to 40GHz, creates massive saturation of an area for safe, screened flight corridors

› Dual chaff cartridge

Double the payload in the same magazine

› Delayed chaff cartridge

Unique patent for delaying fiber dispersion

Nano SPEAR™

Expendable Active RF Decoy

Nano SPEAR™ is a highly advanced, expendable RF decoy designed as a countermeasure to RF-guided air-to-air and surface-to-air missiles and other threats faced in modern battlespaces. This ultra-smart decoy deceptively lures away hostile radar guided missiles, providing a powerful layer of aircraft protection. The system complements the aircraft's existing EW system and operates in coordination with it – or operates as a standalone in the absence of an EW System – ensuring mission success and a safe return of platform and aircrew.



Countermeasures Dispensing Systems and Test Equipment

Elbit Systems Rokar chaff and flare dispensing systems are designed to counter advanced threats and provide reliable protection on a wide range of platforms, including combat aircraft, helicopters and transport aircraft. The lightweight and cost-effective countermeasure systems are integrated with electronic warfare (EW) sensors including missile warning systems (MWS) and radar warning receivers (RWR), for optimal response to IR and radar-guided missile threats. A range of countermeasure dispenser testers improve aircraft readiness and maintenance with fast, efficient and dependable flight-line safety and functionality checks.

Elbit Systems Rokar is a worldwide leader in development and production of electronic countermeasures dispensing systems with an extensive program of record and combat proven by leading air force users.

Featuring advanced technologies and market leading reliability, Elbit Systems Rokar countermeasure dispensing solutions designed to confront advanced treats by flexible dispensing options and meet evolving needs, offering unparalleled capabilities for aircraft and crew safety and enhanced survivability.



➤ Advanced Countermeasures Dispensing Systems (ACDS)

An airborne, computer-controlled self-defense system for chaff, flare and advanced decoy payloads, the ACDS can operate as a dispensing standalone system or integrated in electronic warfare (EW) suites. The MCDU compatible mini-control and display unit, provides a visual display of threats and generates an audio warning. The system interfaces with EW warning systems, aircraft avionics and controls. The ACDS can operate up to 32 "smart dispensers" of any type, including internal, dual and scab-on, and features a pod version with adjustable dispensing directions. The ACDS has a flexible interface to enable easy PFM programming to confront emerging treats. The ACDS is provided with a full ILS package.

Why ACDS? Combat proven • Selected by the Israeli AF and other leading AFs worldwide • Enhanced capabilities:

- Supports cocktail of payloads types (like Spectral and MTV) in the same dispensing program, to better confront modern missiles
- Provision for advance payloads
- Threat adaptive (takes into consideration flight data like speed, altitude, angle of arrival, etc.)
- Simultaneous firing to achieve short intervals of firing
- Mix of up to four payloads in the same magazine (very important to aircraft carrying a small quantity of magazines)
- Updated frequently (including handling of obsolescence) based on feedbacks from the Israeli and other AFs
- Low Weight & Power Consumption
- Easy installations, contains only two main LRUs
- High MTBF
- Full ILS Package for "O", "I" and "D"-Levels of maintenance



Countermeasures Dispensing Systems and Test Equipment



› Mini Control & Display Unit (MCDU)

The MCDU serves as a cockpit command and display panel to generate dispensing programs control and command the dispensing decoy payloads. It interfaces with the smart dispensers for sending dispensing commands and receiving dispenser's decoy inventory status. The communication to the RWR/MWS is carried out via discrete lines communication.



› Smart Dispenser & Magazine

The Smart Dispenser consists of a built in smart dispensing module to generate firing pulses for ejecting the decoy payloads. It communicates with the MCDU via RS 422 link. Several Smart Dispensers can be controlled by the MCDU. Each Smart Dispenser carries a Magazine with a retaining plate. The Magazine consists of multiple rectangular storage compartments for 1" x 1" x 8" or 2" x 1" x 8" payloads. The retaining plate holds the payload cartridges and includes coding pins for installed payload type identification.



Countermeasure Testing Equipment



› Smart Breech Plate Adapter (SBPA)

The SBPA (V2) is a self-contained “0” level functional tester used to perform (1) fire pulse amplitude and duration test (2) stray voltage absence test prior to payloads installation.



› Countermeasure Dispenser Testers (CDT)

Countermeasure dispenser testers (CDTs) provide safe and effective performance of aircraft countermeasure dispensers. The AN/ALM-288, AN/ALM-293 and AN/ALM-294 self-contained and battery-powered flight-line CDTs are compatible with the dispensers used by the U.S. Air Force, U.S. Army, U.S. Navy and other armed forces around the world. Designed with a clear, direct user interface, the CDTs feature an alpha-numeric display of test results. The CDTs are delivered in a protective two-CDT case.



› Modular ACDS Test Equipment (MATE)

A PC-based lower-level test bench, the modular advanced countermeasures dispensing system test equipment (MATE) runs automatic tests on the ACDS and generates reports based on test results. In automated mode, the system can perform a single line-replaceable unit test or a full system test. In hot mockup mode, the system generates all the avionics and other system signals that interface with the ACDS in the aircraft, monitors the signals from the ACDS to the avionics and analyzes the data. The modular system provides future growth capabilities for ACDS system extension.

Simulators and Armament Interface Unit



› In-flight Embedded Smart Weapon Simulator

Aircrews use the Smart Weapon Simulator (SWS) to train in operation of guided munitions in a range of scenarios, including air-to-air and air-to-ground missions and flight envelope and failures simulations. Since the SWS allows full training functions without munitions, it reduces the:

- Workload of ground crews no longer required to transport and load heavy munitions.
- Likelihood of damage to the aircraft structure, specifically to the fuselage and wings, during loading of heavy munitions.
- Risk of aircraft accidents in takeoff and landing with heavy configurations.
- Life-cycle costs of the aircraft, since the aircraft flies with less weight.

The lightweight SWS is easily installed with a harness connection to pylon connectors and is suspended from the pylon.

The SWS has been field-tested under a range of operational scenarios and meets all relevant military standards.



› Armament Interface Unit (AIU)

The AIU handles all the safety critical requirements of the armament, providing the functions required to release, arm, control, operate or jettison weapons. The unit can be adapted as a station interface unit or a wing interface unit depending on aircraft configuration.

Weapon release or fire requires three independent actions. The system interfaces with both weight-on-wheels and wheels-up switches.

Emergency jettison circuitry is independent of all other components and is implemented in hardware.



Elbit Systems Land

E-mail: land@elbitsystems.com | www.elbitsystems.com | Follow us on   

The logo, brand, product, service, and process names appearing herein are the trademarks or service marks of Elbit Systems, Ltd., its affiliated companies or where applicable of other respective holders. All information in this document is for general information only and is subject for change without notice. © 2019. This brochure contains Elbit Systems and others proprietary information. EPP5-WKIT-020