

Counter-IED and Security



Innovative cyber-security, CBRNE, minefield clearance,
EOD and military demolition solutions

Counter-IED and Security

Chemring is a world leader in the global counter-IED (improvised explosive device) and security market with high technology products to detect, disable and defeat the threat posed by either concealed IEDs, unexploded ordnance (UXO) and chemical and biological agents.

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The JUNO® chemical detector can be used to monitor for very low levels of chemical agents during routine stockpile surveillance.

IED Detection

The growing threat of buried IEDs as well as post-conflict UXO unexploded ordnance contamination has increased the need for a range of sophisticated detection technology.

Advanced Ground Penetrating Radar (GPR) products

NIITEK is a world leader in the development and manufacture of combat proven mine and unexploded ordnance detection systems. Ground penetrating radar (GPR) sensor technology was developed specifically for detecting metallic and non-metallic mines. The detection kits have several components which include: NIITEK's proprietary GPR sensor technology, sophisticated automatic target recognition (ATR) algorithms, automatic marking and a clever automatic ground tracking and damage control carrier bracket. All of these are monitored and controlled by a user-friendly graphical touch-screen interface that lets the operator 'see' under the ground.

Husky Mounted Detection System (HMDS)

- Readily adaptable to other vehicles
- Breakthrough Pd/FAR* performance
- Integrated on Husky vehicle
- Automated sensor height control
- Intuitive controls/touchscreen display
- 3D subsurface visualisation

R-VISOR on TALON®

The automatic detection, recognition and precision location of buried anti-personnel and anti-tank mines.

- Readily adaptable to other robotic platforms
- Breakthrough Pd/FAR* performance
- Integrated on TALON®-class vehicle
- Remotely controlled operations
- Integrated advanced metal detector
- Intuitive controls/touch screen display
- 3D subsurface visualisation

R-VISOR TALON® Robot Mine Detection System (AMDS) with VISOR™ 1050 and EMI Sensor

- Tactical Robotics Controller for mounted and dismounted operations
- Wireless data and control link
- Pan-tilt-zoom and rear-view cameras
- Co-located VISOR GPR-EMI Electro-Magnetic Inductance
- Automatic Threat Recognition algorithms
- Threat and lane marking systems

MineStalker II

- Breakthrough Pd/FAR* performance
- Automatic real-time detection and marking
- Integrated on Land Tamer vehicle
- Remote start, E-stop, cruise control
- Intuitive controls touchscreen display
- Remote subsurface 3D visualisation
- Electronic marking with differential GPS
- Readily adaptable to other vehicles

*Pd=Probability of Detection; FAR=False Alarm Rate



R-VISOR on TALON®.



Husky Mounted Detection System (HMDS).

Chemical, Biological and Explosive Detection Systems

Chemring Detection Systems (CDS) is a leading provider and systems integrator of advanced Chemical, Biological, and Explosive (CBE) threat detection systems, providing full lifecycle product design, development, production and logistics support.

JBPDS (Joint Biological Point Detection System)

- Rapid and fully automated detection, identification, warning, and sample isolation of high threat biological warfare agents (BWAs)
- Continuous detection
- Simultaneous detection of 10 BWAs
- Identification in less than 20 minutes
- Sample collection for confirmatory analysis
- Ship, shelter, portable, and trailer configurations
- Remote and local monitoring
- Network multiple systems

BAWS (Biological Agent Warning Sensor)

- Biological agent detection system used to detect and warn personnel of imminent threats
- Uses Laser-Induced Fluorescence (LIF) to search for a broad range of biological agent particles.
- Currently deployed in the DoD Joint Portal Shield (JPS) and the Joint Biological Point Detection System (JBPDS)

ABSS (ATHINA Biological Security System)

- Next generation portable networked tactical detection system
- Sensing components (detectors, collectors, and identifiers) are "plug-and-play" compatible to allow rapid system configuration for a specific security application
- Ruggedized system provides suitability for use by first responders for on-scene monitoring

JSLSCAD

(Joint Services Lightweight Standoff Chemical Agent Detector)

- Passive infrared chemical agent detector
- Fully automated, static or on-the-move 360° coverage
- Day and night operation
- Scans for airborne chemical clouds at 3km range
- Fully ruggedized to MIL-STD-810
- Export variant (I-SCAD®) developed and product launched

JUNO® - Hand-held chemical detection

- Next-generation handheld chemical threat detector
- Detects and identifies CWAs and TICs by Class and Type
- Provides visual and audio alert
- Rugged design for use in austere environments
- Significant improvement over competitors' sensitivity and false alarm rate

Standoff Explosives Detector

- Implementation of a real-time sensor technology that will be used in the field to detect explosive threats from standoff
- Current effort includes the fabrication and delivery of multiple sensors to the U.S. Army, as well as product testing, soldier training and field support



JUNO® - Hand-held chemical detection.



JBPDS.

Threat Detection

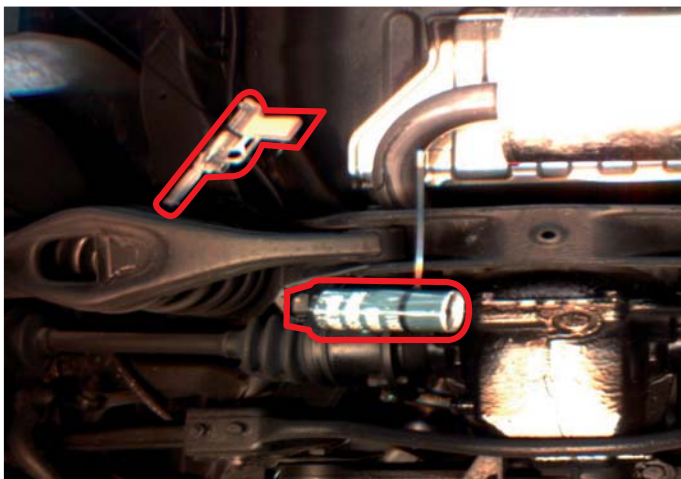
An essential element of homeland security in every country is threat detection. Chemring has created a range of products from VehicleScan (screening for contraband) to Lawful Intercept Systems including covert tactical lawful intercept probes.

VehicleScan

VehicleScan is a modular site access and security solution that is a mobile, fast and effective method of viewing the underside of vehicles (cars, bikes, trucks, coaches and even trains). The imaging is of superior quality, high resolution and colour. Ideal for permanent or mobile deployment at numerous high risk locations such as government installations and border checkpoints around the world as an aid in the detection of IEDs, contraband, weapons and even people. VehicleScan can be offered as a mobile system (20 mins set up) or as part of a fixed, static security infrastructure.



VehicleScan - static.



VehicleScan - automatic image matching.

Vanguard

Vanguard provides scalable modular lawful intercept solutions, optimised for performance and designed for minimum total cost of ownership. Backed by DPI and application processing patents, Vanguard has been the trusted system of choice for operators and governments across the globe.

Solutions have been running successfully in five continents for over five years.

Vanguard provides full turn-key lawful intercept compliance solutions:

- Warrant and System Management - Intercept Management System (IMS)
- Mediation and Handover - Mediation Device (MD)
 - Switch, Router and Call Server integration
 - Passive Probe integration
- Passive probes



Lightweight Lawful Interception Probe.

Disable - Electronic Countermeasures ECM

Electronic Countermeasures (ECM) temporarily disable radio controlled IEDs and mine-breaching systems to clear a pathway. The increased asymmetric threat from insurgency operations continues to challenge coalition forces. As a consequence, current operations continue to highlight the vulnerability of global forces to IEDs, especially radio-controlled IEDs and roadside bombs. Roke is a world-leading developer of Counter-IED ECM techniques for government and prime contractors.



Defeat - Neutralisation of IEDs and Unexploded Ordnance (UXO)

Initiators

Chemring offers a range of 'light' to 'heavy' initiation solutions based upon the specific user requirements. This includes:

Products

Shrike and **mini-Shrike** wire link exploders.

Breach and **FRED** for short range RF initiation where a lightweight and easy to use initiator is required.

Time Answer Back System (TABS) for longer range initiation where the user requires a lightweight programmable, multi-receiver system with a timer function and a unique 'answer back' systems diagnostic capability.

Mini-RABs for longer range initiation where the user requires a robust programmable, multi-receiver system and a unique 'answer back' systems diagnostic capability.

PEDs and **TED**: versatile, programmable electronic delay fuze designed for use with Group I and insensitive Group II detonators that have been fully approved as Safe and Suitable for Service (S3).



Disruptor in action.



Rocket wrench.



Time Answer Back System (TABS).

Disruptors

Chemring offer a range of 'light' to 'heavy' recoilless disruptors and other equipment designed to safely neutralise IEDs and UXO in-situ, whilst minimising the risk of detonation and maintaining the integrity of any forensic evidence if necessary. This includes:

RE 12g Mini Disruptor The RE12g Mini is a modular recoilless disruptor. The cannon is powered by an electrically initiated 12 gauge cartridge and features a 19mm bore barrel. The disruptor can be used within either a water charge, frangible or solid projectile with a mass of 50g.

Maxi De Armer Disruptor Recoilless Stand Off RE70 M3 Plus
The De Armer Disruptor RE 70 M3 Plus is a modular, recoilless de armer and disruptor. The tool can be configured either as a de armer for firing a range of solid projectiles or a disruptor for firing a range of fluid and frangible projectiles.

Midi Disruptor Recoilless Stand Off RE 50-28 M2 The de armer disruptor RE 50-28 is modular and recoilless. It is powered by an electrically initiated 0.5 calibre power cartridge and features a 28mm barrel.

Pigstick Disruptor Injector Kit EOD cased L22A1 The "Pigstick" is a conventional close up tool designed to disrupt a wide range of improvised explosive devices.

Hotrod Disruptor Injector Kit EOD cased L54A1 The "Hotrod" or "Improved Disruptor" is a conventional close up tool designed to disrupt a wide range of improvised explosive devices.

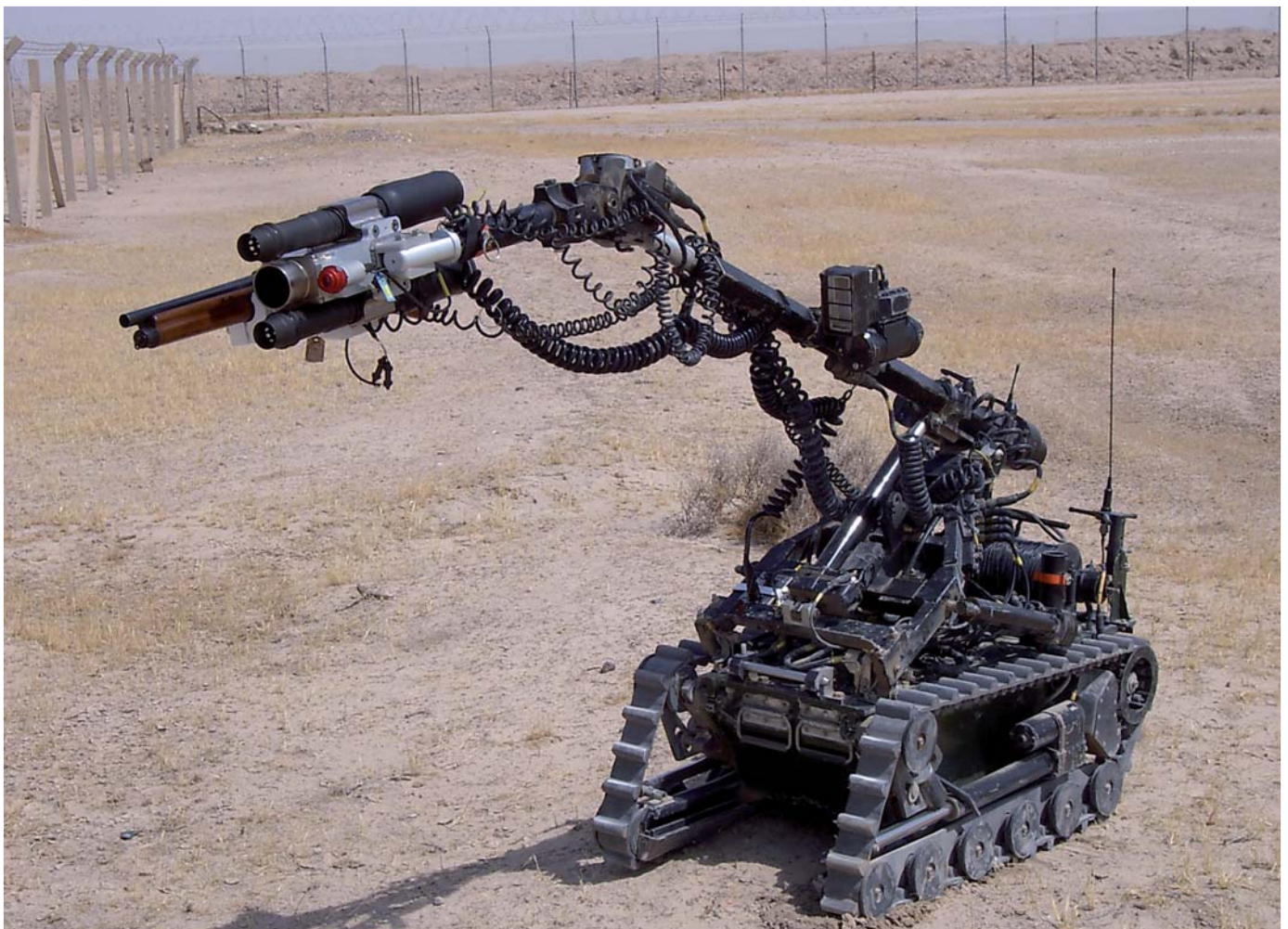


RE70 M3 Plus Maxi De Armer Recoilless Disruptor.

ROV (Remotely Operated Vehicle) Integration

Chemring's ability to mount equipment such as its disruptor's and initiators onto an ROV increases the successful role of a robot's capability in C-IED tasks. Using Bespoke Weapons Carriers to do this directly increases the safety of the EOD operator working from a further distance from the suspect device.

Chemring are proud to be working with many key manufacturers within this market to provide a complete C-IED Solution mounted onto ROVs. To date this has included: Remotec (Northrop Grumman), QinetiQ, Telerob, iRobot, ARA, PIAP, Allen Vanguard and TBM.



Pair of RE70 M3 Plus Stand Off Disruptors and bespoke RE700 series weapon mount, attached to a Remotec Wheelbarrow MK8b.

Demolition Stores

We have developed a complete capability in demolition stores to meet the needs of military users for Explosive Ordnance Disposal, field engineering and demolition. We provide a full range of explosive products from electric and igniferous initiation systems to intermediaries, such as detonating cords and components, and main charges, both bulk explosive and cutting charges.

SABREX is the next generation of Flexible Linear Cutting Charge (FLCC) that uses explosive energy to produce a fine, fast and stable cutting jet to cut a wide range of target materials. It is the most highly developed explosive cutting tool on the market and provides the Demolitions Engineer, Breacher and EOD specialist with an unrivalled capability on land and underwater.

SABREX is available in a family of five natures specifically selected to match the most commonly occurring target sizes.

Bangalore Torpedo Advanced Performance Bangalore Torpedo (APBT) incorporates a unique and patented design feature which enhances its cutting capability against traditional non-resilient and incoherent target arrays. This design feature has also demonstrated cutting performance against a 6mm steel target. APBT can be joined with up to seven additional Bangalore Torpedo tubes for tactical deployment to defeat large or extended obstacles up to 8 metres in length.

Mine and Obstacle Breaching Systems Chemring is the manufacturer of the two main man-portable Obstacle Breaching Systems for quickly clearing safe passageways through minefields and other obstacles. PEMBS (Portable Explosive Mine Breaching System) is the leading European system in use with French, Australian, German, Norwegian, Spanish and Greek armies. APOBS (Anti-Personnel Obstacle Breaching System) is the US standard explosive line charge system in use with the US Army and Marine Corps.

Charge Demolition Sheet Explosive - SX4 (DPX9) is fully compliant with the requirements of MPER96 and is an insensitive RDX based High Explosive suitable for EOD or general demolition tasks.

The specially formulated explosive composition provides a high level of safety whilst maintaining peak performance for metal cutting where minimum shock wave and noise levels are acceptable.

SX4 (DPX9) is designed to be easily and reliably initiated by L1A2, or L2A2 detonators, detonating cord L5A1 or Detonating Cord Boosters (DCB).

Mouldable Plastic Explosive C4 is a plastic explosive which is mouldable by hand to form demolition charges of various shapes and weights. C4 Plastic Explosive is fully compliant with the requirements of MPER96 (amended) and is an RDX based High Explosive suitable for EOD or general demolition tasks.

C4 is designed to be easily and reliably initiated by L1A2, or L2A2 detonators, detonating cord L5A1 or Detonating Cord Boosters (DCB).

Thermite Torch is a lightweight incendiary device used to facilitate the destruction by burning of the explosives and propellant in unexploded ordnance (UXOs) and to initiate the burning of other less combustible materials.

Scalable Lightweight Infantry Clearance Explosive (SLICE) is the next generation portable clearance system. SLICE is an ultra light weight, rocket launched explosive line charge in a modular, distributed system based on meeting the strictest requirement of limiting additional soldier burden. The packs are designed to secure to in service load carrying equipment for rapid deployment without risk of snagging or adding significant weight.



SABREX.



Bangalore Torpedo.

Capabilities

- Chemical and biological systems manufacturing, integration and development
- Advanced optical, laser, electronic, sensor, signal, software prototype labs
- Electronic/electrical test capabilities
- High dynamic range digital acquisition systems
- Advanced signal processing for ATR, noise reduction
- Graphical user interfaces
- Electromagnetic induction sensors
- Analog circuit design
- 3D mechanical design, modelling for cabling and air flow/thermal modelling
- Testing of explosive classification type 1, 2, and 3
- Detonator output test
- World class primary explosive manufacturing facility
- Dedicated plastic explosive manufacturing facility
- Insensitive munitions design capability



Chemring Group PLC
Chemring House
1500 Parkway
Whiteley
Fareham
Hampshire
United Kingdom PO15 7AF
Tel: +44 (0)1489 881880
Email: info@chemring.co.uk