

Countermeasures



Electronic and expendable countermeasures
for land, sea and air systems.

Countermeasures

Chemring Group companies are the world leaders in the design, development and manufacture of advanced expendable countermeasures and countermeasure suites for protecting air, sea and land platforms against guided missile threats.

As each new threat has emerged, Chemring has developed successful, reliable countermeasures to protect aircraft, ships and land platforms from increasingly sophisticated missile attacks – saving countless lives.

These threats are all too real – more than three-quarters of all aircraft losses in combat during the past 25 years have been as a result of hits by heat-seeking missiles. Our products counter these and other missile threats with decoy flares and chaff which distract missiles by providing alternative, more attractive ‘targets’ which divert them harmlessly past their intended target.

Our products are designed and manufactured to meet the highest quality and reliability standards and can be tailored to meet specific customer requirements for the protection of their fast jet, transport and rotary-wing aircraft as well as all naval vessels across the world.

Chemring is the world’s largest supplier of expendable decoys, with a broad product range including:

- Conventional flares
- Advanced flares
- Special Material Decoys
- Chaff
- Naval countermeasures
- Electronic intelligence equipment
- Offboard Electronic RF countermeasures

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Air Countermeasures

Our comprehensive product range is based on proven threat driven solutions to protect all types of air platforms. We have optimised our products to support the challenges of modern air missions and offer mission specific capabilities including day and night visual covertness and tailored spectral characteristics.

Products:

Our conventional Infra-Red (IR) countermeasures provide decoy protection against heat-seeking missiles for most US, NATO and non-NATO platforms deployed around the world. Our products are based on well-proven composition technologies with a range of safety features to ensure successful deployment.

ALA-17/C

Unique flare for protecting the B-52 aircraft.

M206

US in-service 1" x 1" flare for protecting helicopters, the A-10 and C-130.

KC-005

1" x 1" form, fit and functional alternative to the M206.

MJU-53/B

US 2" x 1" flare for protecting the C-17 platform.

KC-002

2" x 1" form, fit and functional alternative to the MJU-7A/B.

KC-38

36mm round flare, and a commercial form, fit and functional alternative to the US MJU-38/B.

SM875

36mm training flare.

MJU-10/B

2" x 2.5" flare for protecting F-15 aircraft.

MJU-32A/B

36mm flare for protecting P-3 and Naval Helo aircraft.

MJU-7A/B

US in-service 2" x 1" flare for protecting the F-15 and F-16, transport aircraft such as the C-130 and legacy platforms including the F-4 and F-5.

KC-32

36mm flare and a commercial form, fit, function replacement for the MJU-32/B.

Flare Countermeasures 118 Mk3 Type 1

1" x 1" flare in service with NATO and other air forces on a wide variety of light attack and transport aircraft and helicopters.

Flare Countermeasures 218 Mk 3 Type 1

2" x 1" flare and is in service with NATO and other air forces and a wide variety of fast jet and transport aircraft.

Cartridge Countermeasure 55mm Typhoon IR Decoy

Unique flare specifically developed for the Typhoon aircraft, and includes internal identification circuitry to allow for future growth in the software selection and deployment. Variants include spectral and MTV.

Flare Countermeasure 26mm Mk1 Type 1

Designed for a range of platforms used to defend against infra-red seeking missiles. The flare performance characteristics can be tailored to suit both fast jet and helicopter protection.

Cartridge Countermeasure 50mm Mk3 Type 1

Used in aircraft countermeasure systems to combat heat-seeking missiles. The flare is a one-shot expendable countermeasure and is electrically initiated by the aircraft's countermeasure dispenser system.



C-17 dispensing flares.



Typhoon.



SH-60 Seahawk.

Advanced Countermeasures

Our advanced countermeasures are designed to defeat latest-generation guided missiles incorporating spectrally disseminating or rate-biased seekers.

DSTL22

The flare countermeasure DSTL 22 is an aerodynamic flare and is suited to helicopter, small transport and small fighter aircraft.

DSTL73

The flare countermeasure DSTL 73 is a multi spectral flare and is suited to helicopter, transport and small fighter aircraft.

CM218 K7

The flare is a direct fit and form equivalent of the US MJU 7A/B flare but provides trajectory tailored to overcome rate-biased countermeasure systems.

MJU-39/B and MJU-40/B

Countermeasure Flares for protecting F-22 aircraft

M212

Tailored output flare for protecting rotary wing and transport aircraft

KC-32

36mm flare and a commercial form, fit, function replacement for the MJU-32/B

KC-003

36mm with tailored output for both fixed and rotary wing aircraft

MJU-55/B

Unique 36mm decoy flare for protecting F-18 with certain dispenser systems



F-18 over Afghanistan.

Special Material Decoys

Our special material decoys rapidly oxidise in air to generate an IR signature to protect against heat-seeking missile threats.

MJU-49/B

36mm format special material decoy used to protect F-18 and all USN aircraft against advanced air-to-air and surface-to-air infrared weapon systems. Contains no pyrotechnics, uses CCU-63 and CCU-136 impulse cartridge to expel material from decoy casing.

MJU-50/B

1" x 1" special material decoy used to protect helicopters, fast-jet and transport aircraft. Contains no pyrotechnics, uses BBU-35B or M796 impulse cartridge to expel material from decoy casing.

MJU-51A/B

2" x 1" special material decoy used to protect C-17, fast-jet and large signature aircraft. Contains no pyrotechnics, uses BBU-35B or M796 impulse cartridge to expel material from decoy casing.

MJU-52/B BOL IR Pre-emptive Decoy

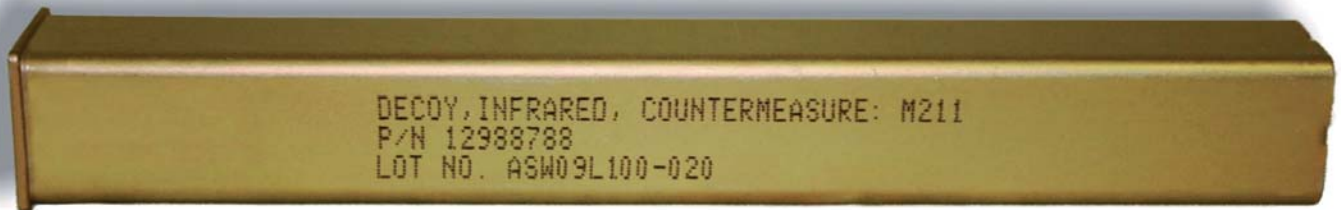
2" x 3" special material decoy virtually unobservable to the naked eye, to protect F-15, F-18, Typhoon, Tornado and Gripen aircraft. Contains no pyrotechnics, uses BOL dispenser series to dispense the special material.

MJU-64/B

Special material decoy used to protect the F-16, C-130 and A-10 platforms. Contains no pyrotechnics, uses either the CCU-145/A, BBU-35B or M796 impulse cartridge to expel material from decoy casing.

M211

1" x 1" special material used to protect helicopters, fast-jet and transport aircraft. Contains no pyrotechnics, uses BBU-35B or M796 impulse cartridge to expel material from decoy casing.



Chinook dispensing SMD and flares.



AC-130H.

Chaff Countermeasures

Chaff Cartridges are an aircraft's best defence against radar guided missiles and tracking systems. Chemring is proud to be one of the pioneers in the design and manufacture of passive RF countermeasure products and payloads.

RR170 Chaff Cartridge for multiple platforms

A 1" x 1" direct fit, form and function replacement for chaff cartridges of US origin. The chaff cuts are optimised to provide a broadband radar return signal but the radar cross can be manipulated by incorporating differing chaff cuts to meet specific customer requirements.

Chaff Cartridge CCM RR129/144

A 36mm direct fit, form and function replacement for those of US origin. The chaff cuts of the cartridge are optimised to provide a broadband coverage. However the cuts can be customised to meet the requirements of the customer.

Chaff Countermeasure 26mm Mk1 Type 1

A 26mm chaff cartridge that forms part of a defensive aids system to protect helicopters and fast-jet aircraft from radar guided missile threats by providing a suitable alternative and preferred target or 'decoy'. The purpose of the decoy is to ensure that the radar guided missile passes the target aircraft by an effective miss distance.

RF Modular Expendable Block

Chemring has pioneered the Modular Expendable Block (MEB) concept, and is the only manufacturer offering this family of products. The RF MEB brings a new dimension to dispensing chaff by doubling the number of payloads and increasing the number of break-lock salvos, achieving significant logistic and aircraft turn-around savings. It is compatible with advanced CMDS like ALE-47.



MiG 29.



C-17.



Blackhawk.

Naval Countermeasures

Chemring is the world leader in the provision of naval anti-ship missile countermeasures or 'soft kill' expendables for protecting warships. It is the prime supplier of passive RF/IR decoys to the Royal Navy, many NATO and other navies throughout the world.

Chemring's latest 130mm naval countermeasure innovations include a wide range of tailored payloads e.g. extended frequency range chaff and multi-payload rounds containing chaff, IR or obscurants. The rounds feature a highly variable height and range capability which is controlled by improved algorithms within the combat management system. This data is transferred via the rounds' interface. These new capabilities are further optimised when deployed from Chemring's fully trainable 130mm launcher - CENTURION®. The design of advanced rounds, in conjunction with the launcher development, optimises system performance and therefore the probability of escaping hit. This combination offers the ultimate passive solution to counter current, emerging and future missile threats.



HMS Dauntless.

RF Products

Cartridge Chaff 130mm Variable Range

This is an advanced multi-payload round that deploys a series of six RF decoys that progressively move the aim point of an incoming threat missile away from its target ship. Its performance is optimised when used in conjunction with the CENTURION® trainable Launcher.

Cartridge Countermeasure Chaff 130mm Seduction Mk36

Mk36 is a 130mm calibre chaff seduction round that is compatible with all 130mm launchers; it carries a single, large volume payload that takes maximum advantage of multipath to enhance Radar Cross Section (RCS).

Cartridge Countermeasure Chaff Seagnat 214

The Mk214 Seagnat is 130mm chaff seduction round employed widely throughout NATO.

Cartridge Countermeasure Chaff 130mm Distraction CCM216 Mk1 Type 1

CCM 216 Mk1 Type 1 is an 'advanced' chaff distraction round that deploys a single 'high' performance (RCS) chaff payload and features manually selectable range and cloud height.

Cartridge Countermeasure Chaff Seagnat 216 Mod 1

Seagnat 216 Mod 1 is NATO's 'standard' chaff distraction decoy. It is rocket propelled and makes use of a drogue parachute during payload descent. It incorporates 3 high performance chaff payloads and is compatible with all 130mm launchers.

IR Products

Cartridge Countermeasure 130mm Mk245 A2

Mk 245 A2 is a 130mm IR seduction round that offers 'comprehensive' performance characteristics, having a walk-off capability. It incorporates five sequential, airburst submunitions and is compatible with 130mm launchers.

Cartridge Countermeasure IR 130mm PIRATE

PIRATE is a 130mm calibre, mortar-launched, IR round that provides a ship-like signature in both the 3-5 and 8-14 m IR wavebands. It combines air and sea surface emitters to generate a high intensity, long duration, large area output close to the surface.

Cartridge Countermeasure IR 130mm TALOS Autofire

TALOS is a multi-burst walk-off infrared seduction decoy round that is suitable for all warships. The firing sequence initiates with a single firing pulse. Five submunitions are sequentially launched by an on-board computer and power supply to create the walk-off pattern. The resulting clouds of burning red phosphorous, together with the associated emissive smoke, provide a robust infrared signal with excellent spectral ratios, generating effective long-duration countermeasure protection.

Cartridge IR 130mm Variable Range

This advanced round is designed for use with all 130mm launchers but is fully optimised when used in conjunction with CENTURION®. It comprises of six individual IR or obscurant payloads that can be deployed in a pattern to create a ship-like signature.



130mm round firing.



Infrared chaff fired from launchers on board HMS Iron Duke.

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Other Rounds

Cartridge Countermeasure 170mm

This is a rocket propelled large payload deployment vehicle that is flared from 130mm to 170mm such that it is compatible with 130mm launchers. Its large payload carrying capability makes it highly suitable for a variety of payloads including Chaff, ASW, Obscurants and anti-piracy solutions.

Practice / Drill Rounds

To support naval expendable countermeasures a range of practice rounds for launcher proving firings and Drill rounds for operator loading are available.

Cartridge Countermeasure IR/Chaff 130mm CHIMERA

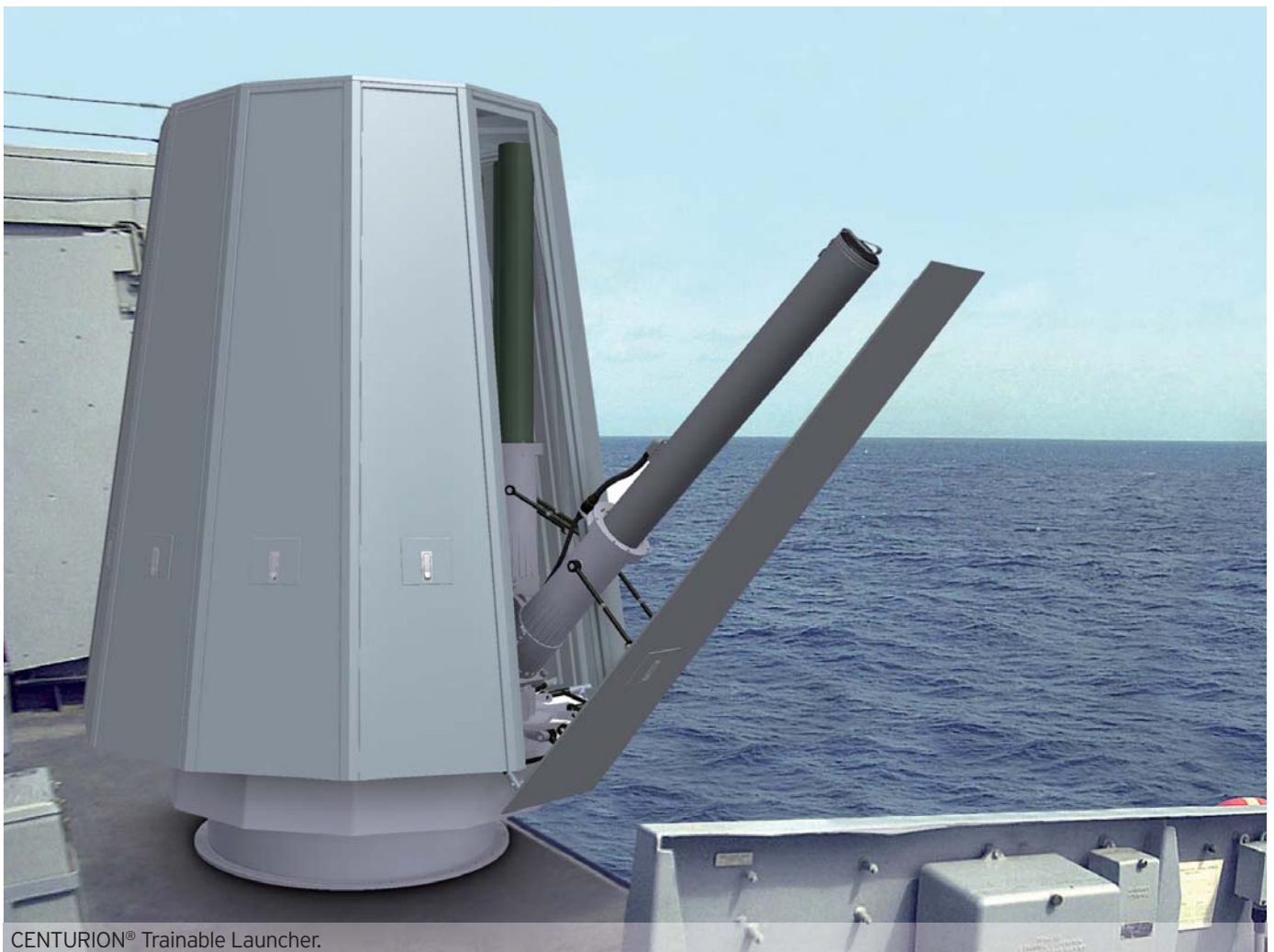
Based on the 130mm Mk36 chaff and Thermal Anti-missile Launched Offboard Seduction (TALOS) technology, CHIMERA combines centre-burst chaff and multispectral IR submunitions to provide sequential radar and IR decoy effects.

Naval Decoy Launchers

CENTURION®

CENTURION® is a 12 x 130mm barrelled fully trainable launcher that minimises the need for ship manoeuvre and provides a fast reaction time. It is compatible with existing rounds but has been specifically designed in conjunction with a family of new advanced Variable Range Multi Payload Rounds. This combination of trainable launcher and variable range capability allows payload placement to be controlled in 3 axes. Positional accuracy is further enhanced through stabilisation to counter ship movement.

This gives better ship signature replication for in the missile seeker and offers a step change in soft kill performance. Highly versatile and designed to be adaptable to defeat future threats and accommodate future solutions, CENTURION® also offers significant capability in other warfare areas including the deployment of anti-torpedo countermeasures and low lethality deterrents to counter asymmetric, terrorist and piracy threats. With its unique design features, short reaction time, high positional accuracy and outstanding versatility, the CENTURION® trainable launcher offers the perfect solution for naval platform defence.



CENTURION® Trainable Launcher.

Land Countermeasures

Electronic Intelligence Equipment

The demands placed on communications surveillance and attack systems have never been so complex. Electronic Warfare (EW) operations in today's battlespace require intuitive, lightweight and rapidly deployable systems to monitor the constantly changing communications environment. In today's contemporary operating environment there is a need to understand a potential threat and get inside the adversary's Observe, Orientate, Decide, Action (OODA) loop.

Products:

RESOLVE Tactical Electronic Warfare System

With unique on-the-march DF capability, RESOLVE EW system is a 100% UK state-of-the-art field proven Electronic Surveillance and Attack system. Designed by operational experts, Resolve offers intercept, geolocation, exploitation and denial of tactical communications in the HF to UHF frequency bands, including 'modern waveforms'. RESOLVE can be configured for on-the-march, on-the-move and static deployments.

RESOLVE is a force multiplier that delivers tangible tactical effect by enabling the operator to balance communications exploitation and denial underpinned by accurate geolocation information.

LOCATE Strategic HF Monitoring

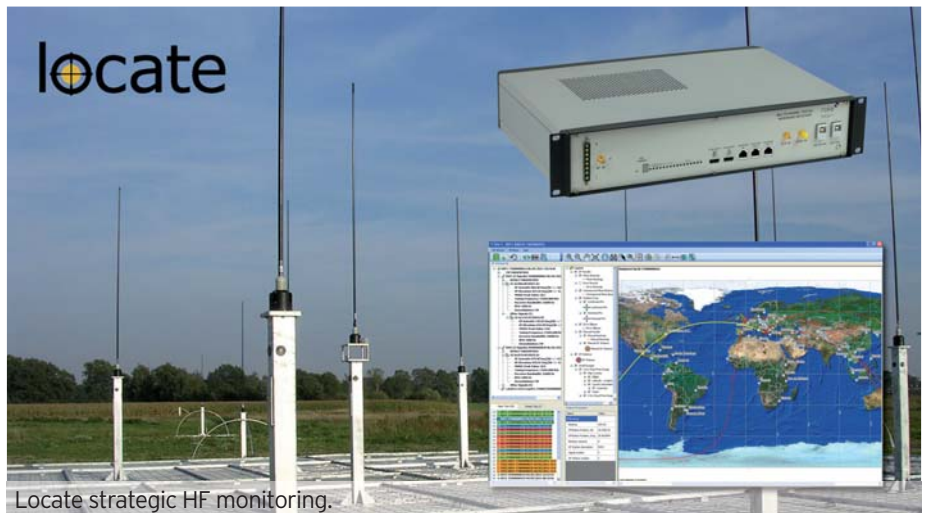
LOCATE is a proven strategic monitoring system for the intercept and geolocation of HF signals. Available as a complete system, or as individual components to upgrade existing systems, LOCATE supports a wide range of applications, including:

- Detection, interception and collection of signals of interest (SOIs)
- Monitoring and control of harmful interference
- Estimation of actual spectrum occupancy
- Tasking of array systems for radio direction finding and beamforming

A complete system design and installation service is available to fulfil your requirements within the SIGINT and strategic monitoring arena. This can include requirements for capture, site survey, manufacture, installation, as well as training and support. Where existing sub-systems are sufficient we can provide our LOCATE systems to upgrade the other elements to bring the whole system up to date.



Resolve Manpack.



Locate strategic HF monitoring.

Countermeasures Technology

As an innovative company operating at the leading edge of the expendable countermeasures business, we continually invest in technology, people and research. Research and development (R & D) are essential to finding reliable solutions not only for today's, but tomorrow's threats facing armed forces and, in some circumstances, the civilian sector. We invest more than £2m in R&D annually.

In order to continue our quest to increase "Platform Survivability" we employ experienced teams of scientists and engineers who work with government and other industry partners to research and develop a wide range of countermeasures products to combat the ever-increasing threats.

We have played a leading part in the development of some of the most advanced and innovative countermeasures products including CENTURION®, BOL IR, BOL chaff and flare payloads, the Modular Expendable Block (MEB) and PIRATE 130mm IR round, and the Chimera dual RF/IR 130mm naval decoy.

Our core capability in pyrotechnics and explosives in combination with wide ranging engineering experience provides rare and sometimes unique facilities that are required to meet difficult and challenging objectives.

All our products are designed using the latest technology and as a result of detailed threat analysis and specialised computer modelling and measurement trials in collaboration with other decoy system manufacturers.

Our product range covers expendable solutions for most platforms and dispensing systems in use today and entering into service in the future.

Capabilities

- Airborne Countermeasures Magnesium based (MTV) infrared Flares/Decoys
- Special Material Decoys
- Spectral Dual Band Infrared Flares/Decoys
- Aerodynamic & Thrusted Flares/Decoys
- BOL IR Decoys
- Special Material Decoys
- Chaff
- Impulse Cartridges
- EW Training (Emphasis on Chaff and Flares)
- Safety/handling and logistics training
- Environmental Testing Facilities
- Modelling and Simulation
- Post Design/ILS Services
- ACT Programs
- IR Measurement and Related Equipment
- Product Development
- Modelling including 'CounterSim'
- Trials Management, Evaluation and Analysis
- Environmental Testing
- Post Design Services
- Through Life Surveillance Support
- Training including Computer Based Training
- Disposal



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