

# **CINCH CONNECTORS**

Cinch Connectors Interconnect Products with Facilities around the World

# FAUN TRACKWAY

Portable Aluminium Roadways, Runways and Helipads for the Defence Industry

# HABIA CABLE GROUP

Highly Specialist Defence Cable Design and Manufacture

# MEGGITT DEFENCE SYSTEMS LTD

World Leader in Design, Manufacture and Operation of Unmanned Vehicle Systems

# PERSIDES

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# **SPECTRA**

Leading Design, & Implementation of Satellite & Radio Communication

Image Courtesy of Habia Cable Group

# PLUS.

# BREAKING NEWS FROM...

BETALIGHT B.V. MECO DEFENCE VEHICLES UTFILITY FLAME L-3 WESCAM MARSHALL

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# Welcome to this edition of the Military Systems & Technology newsletter.

As an established web portal for the International Defence & Aerospace Industry, we strive to provide a comprehensive and detailed listing of Military Equipment Suppliers, Products and Services. This newsletter is designed to keep you up-to-date with latest news and events within the Defence Industry's Governing Bodies, Organisations and Companies.

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# **BREAKING NEWS**

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# **Cinch Connectors**



# CINCH CONNECTORS INTERCONNECT PRODUCTS WITH FACILITIES AROUND THE WORLD

Cinch Connectors designs and manufactures a broad range of interconnect products with facilities around the world.

In operation since 1917, Cinch supplies high quality, high performance, and high speed connectors and cables globally to the Aerospace, Military and Defense, Industrial, Transportation, and Computer markets.

Our diverse product offerings include: connectors, enclosures and cable assemblies utilizing multiple contact technologies including copper and fiber optics.



Our product engineering and development activities employ cutting edge technologies for design and modeling, and our various technologies and expertise enable us to deliver custom solutions and products for our strategic partnerships.

We aim to exceed our customer's expectations, and to continually provide innovative solutions to the rapidly changing needs of the markets, and customers, we serve.



#### **Cinch Custom Capabilities**

Cinch specializes in providing specialty interconnect and system solutions to the Military and Defense Market. We provide custom solutions with our creative, hands on engineering and end to end approach.

> Fiber Optic Connectivity Solutions Cinch EBOSA™ Expanded Beam Technology

Expands and collimates the optical beam up to 2000 times (single-mode) the original beam size making airborne dirt nearly benign to beam continuity and integrity.

Our patented active alignment technology aligns a standard LC ferrule to Cinch's EBOSA<sup>™</sup> with ultra-high precision. This results in insertion loss and reflectance performance that meets the MIL-DTL-

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• Cinch feed through connectors reduce replacement and repair downtime Modular harness design increases ease of installation

#### **Certified Quality Management System**

- ISO9001
- AS9100
- Certificate of Compliance
- Airworthiness Approval Tag (FAA Form 8130-3)
- BQMS D6-82479 Approved

# **CIN::APSE** Compression Technology

It takes more than an ordinary connector to support advanced performance interconnect applications. It takes CIN::APSE, a proven solderless compression connector technology offers that exceptional mechanical and electrical performance at signals well above 20 GHz.

If you have an interconnect challenge, and need to overcome the restrictions of ordinary connector devices, CIN::APSE can versatile and reliable provide the interconnect solution you need.



specific applications for expanded beam resistance, and vibration. connectors.

#### Why use Cinch's Expanded Beam Technology: • Qualified to MIL-C-26500

- Very short lead-times
- Easy to use
- Extremely durable
- Standard assembly tooling
- COTS ferrules & termination tooling
- Field repairable
- Reduced training, maintenance and total ownership cost

#### Features

- Contact based technologies to suit various connector form factors
- Patented active alignment production process
- Provides superior performance in harsh environments
- Full range of Fibreco expanded beam connectors
- Supports multimode or single mode cable
- 1 to 16 optical channels
- Fiber optic / copper hybrid assemblies
- Custom lengths; high quality military tactical cable
- Wide range of deployable cable reels

# MIL-C-26500 -Cylindrical Connectors: Omega

The C48 Series is a family of connectors qualified to MIL-C-26500. While maintaining the MIL-C-26500 mating interface, this • Superior insulation for increased product has also been expanded to include durability and environmental protection qualifications to numerous specifications to satisfy general purpose connectors

83526/20 & /21 specification and can requirements and unique product challenges exceed the specification for customer for shielding, environmental sealing, fluid

#### Features

- Styles qualified to Boeing BACC45 Series
- Styles qualified to Boeing BACC63 Series
- Power Contact Sizes: 20, 16, and 12
- Coax Contacts Available: Size 12 and 8
- Contacts: Crimp Front release
- Optional Fixed Contacts: PC Termination
- Coupling Styles: Bayonet and Threaded
- Environmentally Sealed

# Indicating Systems (FQIS)

Cinch is the original equipment manufacturer of high performance wire harness assemblies qualified for the critical application of aircraft Fuel Quantity Indicating Systems (FQIS).

#### **Specialized Applications:**

- In-tank qualified harnesses feature aluminum shell hermetic receptacles Shielded and grounded out-tank
- harnesses and bussing plugs
- Custom designed products with high reliability configurations in harsh environments

#### **FQIS Harness Features and Benefits:**

 Gas tight crimp and solder termination to enhance electrical conductivity and prevent corrosion

- Boeing Lightweight hermetically sealed spar

# Innovative Fuel Quantity Compression-Mount Technology

CIN::APSE is a unique, compression interconnect technology which provides superior mechanical and electrical performance. The contact construction consists of randomly wound gold plated



molybdenum wire, formed into a cylindrical Features shape (Figure 1). Standard contact diameters are 0.020" (0.508 mm) and 0.040" (1.016 mm). The basic CIN::APSE contact configuration consists of a contact installed into a customized plastic insulator with the patented Cinch hourglass hole design. Once in place, the contact extends on both sides of the insulator.

# Quick, Solderless Installation

CIN::APSE is easily installed in two basic steps, without soldering. First, using alignment features, the CIN::APSE interconnect is positioned between two components with matching connection footprints. Next, the two components are compressed and fastened together. It's as simple as that.

# Low Compression Force, Low Contact Resistance

The CIN::APSE contact offers one of the best force/deflection ratios in the industry. An average compression force of only 2.5 ounces will yield a typical contact resistance of less than 20 mOhms. This means high I/O count applications can achieve excellent electrical performance with only minimal compression force.

\*Test results are pass/fail criteria, not limitations of the technology.

- Solderless RoHS compatible
- High density/low profile
- Multi-point contact/mechanical wipe
- Minimum contact spacing of 1.0mm (.039)
- Low profile height of .8mm (.032)
- High frequency capability up to 50 GHz and beyond
- Short signal path allows for minimal
- FEXT/NEXT
- Custom Configurations

### Microminiature-D Connectors: Dura-Con

The Cinch Microminiature Dura-Con line of connectors gualified (QPL) to MIL-DTL-83513 is one of the most widely used .050 inch (1.27mm) pitch connectors for military and high-end commercial applications. Dura-Con is ideal where packaging requires a small size and low weight, as well as a highly reliable and rugged connector that has electrical and mechanical integrity under extreme vibration and shock conditions. The heart of the Dura-Con System is the unique wire form pin that provides seven points of contact when mated to the socket. Applications include electronics in missiles, aircraft, launch vehicles, satellites and computers.

Dura-Con connectors are available as all plastic in 9, 15, 21, 25, 31, 37 and 51 positions and metal shell versions in 9, 15, 21, 25, 31, 37, 51 and 100 positions. In addition, Cinch also offers Metal Shell Micro Edge Dura-Con Connectors in 128 and 184 positions, strip connectors up to 60 positions and connector savers. Termination can be solder cup, wired leads or PC mount.

As well as Standard Parts, Cinch provides a wide variety of specials and wired harnesses to industry. Please contact us with your custom or harness needs.

#### Features

• Meets and exceeds requirements for Mil-DTL-83513. available in all standard shell sizes and configurations.

• Available as part of harness assemblies manufactured by Cinch. Highly customizable to meet any application requirement.

• Hermetics available that meet 1X10-8 at half the cost and time of traditional hermetic solutions.

# Military Cable Assemblies

Cinch has capability to design and produce military systems cable assemblies.

• Designed to operate in harsh

environmental conditions when subjected to high vibrations, shock and temperature extremes

• Available in simple point-to-point to more complex harnesses with multiple branches as well as flex circuitry

 Over 25 years experience in designing custom micro harnesses

#### **US Headquarters**

Cinch Connectors LTD. 1700 Finley Road Lombard, IL 60148 USA Phone: +1 630 705 6000





# EXPERT IN SURVIVABILITY

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- Antimicrobial fabrics restrict the growth of odour causing microbes
- · Strategically placed seams to minimise chaffing

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- Pelvic region and inner thigh
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# **PORTABLE ALUMINIUM ROADWAYS, RUNWAYS AND HELIPADS FOR THE DEFENCE INDUSTRY**

Based on the isle of Anglesey, North designed and developed for the UK HGMS can withstand repeated vehicle Wales, is the defence division of Europe's Ministry of Defence (MoD). number one municipal vehicle manufacturer. FAUN.

FAUN TRACKWAY design and manufacture a range of high quality portable access systems for use in military and civilian disaster and emergency relief operations their problems. at its internationally accredited production facilities in the UK.

Capable of withstanding loads of up to 70 tonnes, FAUN's portable aluminium TRACKWAY MLC 70 has the robust qualities demanded by heavy plant machinery, vehicles and equipment used in the construction industry.

Unbeaten in all trials, its products are a trusted ally to 30 different militaries around the world. TRACKWAY was initially



FAUN TRACKWAY employs a team of highly skilled engineers dedicated to HGMS allows vehicles to move with ease exploring new product designs and over difficult terrain conditions such as working alongside future and existing sand, snow, mud, swamp and ice helping to customers to create bespoke solutions to speed mobility and protect assets.

(Anglesey) Ltd and has been producing a trailer. This enables longer roadways to military grade aluminium products in be laid quickly and connected easily. North Wales for over 60 years.

# Portable Military

Heavy Ground Mobility System (HGMS) and Medium Ground **Mobility System** (MGMS)

FAUN produces two complete portable roadways solutions: Heavy Ground Mobility System (HGMS) and Medium Ground Mobility System (MGMS)

loads of up to 70 tonnes and 50m can be deployed in under 10 minutes.

HGMS can also carry an additional 50m FAUN TRACKWAY is the successor of Laird TRACKWAY, towed behind the chassis on

> FAUN's Medium Ground Mobility System (MGMS) consists of the same key elements as HGMS. MGMS comprises 32-metre Roadways lengths and can be deployed in under 6 minutes by two people.

> > Like all FAUN products, MGMS is unbeaten in all trials and can withstand repeated



loads of up to 30 tonnes. It is most appropriate for vehicles with pneumatic tyres and can also be used with JCB and specialist dispenser for beach landings.

# Temporary Runways and Helipads

FAUN has three aluminium panelling designs suitable to create Forward Operating Pads for Vertical Take Off and Landing (VTOL) aircraft – the Helicopter Landing Mat.

They are designed to alleviate brown out while marking out a clear landing area.

# Aircraft Landing Mat (ALM)

FAUN's Aircraft Landing Mat (ALM) is a rapidly deployable expedient runway for longer term temporary installations.

### Rapid Runway Repair (RRR)

FAUN's Rapid Runway Repair (RRR) mats enable critical sections of an airfield to be repaired in order for flying operations to be resumed following an enemy attack.

### Bespoke Engineering Solutions

TRACKWAY continues to invest heavily into the research and development of new products.

FAUN's team of engineers work close with key partners such as the UK's Ministry of Defence – to which it is a prime contractor – as well as leading military institutions such as the U.S military's Engineer Research and Development Centre (ERDC), in order to develop bespoke solutions to individual problems.

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# Habia Cable Group

# NUFACTUR

**Dia Cable** 

years, Habia Cable has the approvals and expertise to design and manufacture highly specialist, often custom designed defence standard cable solutions, which are approved to some of the toughest military specifications in the world.

#### **Key Market Areas:**

- Naval Defence Cables
- Cables for Land Forces in particular Land Vehicles
- Future Soldier Systems
- Airframe applications
- Military communications

# Defence Cables for Demanding Applications Meeting The Challenge

Habia Cable was quick to offer a coordinated approach to meet the needs of global defence manufacturers including establishing corporate purchasing agreements and the provision of local engineering support to multi-national design offices. We believe this is the best way to build strong partnerships with major defence manufacturers.

A Defence Cable Manufacturer for over 40 Our experience as a major supplier in many European countries enables us to use pioneering materials which are able to meet the majority of internationally recognised specifications. Co-operating closely with your engineering specialists, we can also produce custom design cables to meet specific requirements.

### Key Defence and Military Cable Products

Supply within the Defence industries often depends on approvals and specifications. Habia Cable has met this challenge with a variety of material combinations to meet some of the most demanding military applications.

### **SEAGUARD DS Wires** and Cables for Naval **Applications** Naval Cables for Ship-Board

Habia Cable continues to develop a growing range of halogen-free and crosslinked materials. These cables have been Power cables are designed to be tough and used in a wide variety of naval applications highly flexible, with exceptional current including Type 45 destroyers and QEC carrying capabilities.

carrier for the UK, Visby corvettes for Sweden, Collins Class submarines for Australia, Ivar Huitfeldt class frigates for the Danish Navy and Skjold fast patrol boats for Norway. These meet the UK Ministry of Defence specifications defining tight tolerances on fire performance cables in the light of the smoke and toxicity problems that were highlighted during the Falklands War. Designed to meet the British Defence Standard 61-12 Pt 25, these cables provide an impressive balance of rugged performance and Low Smoke Zero Halogen (LSZH) properties.

Other projects we are involved in include the upgrade of Dutch and Belgian Tripartite Mine Countermeasure Vessels with the addition of new Integrated Mine Countermeasures Systems. Habia have worked exclusively with design engineers on this project to provide a highly complex hybrid flexible underwater cable for the sonar system.

### **Hi-Flex Power Cores** for Armoured Land Vehicles

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Designed to meet the German VG 95218 Pt 27 & 28 specification, these cables are tough, durable and resistant to a variety of oils. fuels and other chemicals.

# ETFE insulated, TPS 125 XL Jacketed Cables for Armoured Vehicles

Designed to meet the German VG 95218 Pt 27 & 28 specification, these cables are tough, durable and resistant to a variety of oils. fuels and other chemicals.

## LANDGUARD VG Land Forces Cables

High specification materials ensure thin wall insulation and jacketing to meet land forces VG specifications, used extensively in both military and industrial applications. Developed for use in fighting vehicles and to meet the extensive requirements of VG 95218, Habia Cable's Landguard VG range of single cores and multi-core cables holds VDE approval to VG 95218 Type 020A, 021E, 022C, 023F, 025G, 027B and 028D.

Single cores - Twisted wires - Signal cables - Shielded signal cables

We can supply cables for internal crew and engine bay environments and externally mounted equipment services.

TPS 125 XL is a new material developed mainly for use in armoured vehicles and field communications equipment.

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# FLIGHTGUARD DS -Airframe Wire and Cable Lightweight Airframe

# Wires and Cables

Habia Cable supply light and medium wall, cross-linked extruded XLETFE for airframe defence standard wires and cables. These products are released to the UK MOD Defence Standard 61-12 Part 33. Habia Cable holds approval to UK Defence Standard 61-12 Part 8 and Defence Standard 61-12 Part 33/001 for airframe wires and cables.

Our LSI 155 insulation and sheathing material has been fully tested to the demands of airframe use and can be found on a wide range of helicopters as well as designing the screen type, other other aircraft. Rated for applications up to requirements will be taken +150oC it has also been tested for use in conditions as high as +2000 C (commonly required by customers in the USA).

Our aerospace wire and cable customer base includes the UK MoD, BAE Systems Operations UK, BAE Systems Avionics UK, Westland Helicopters, Saab, Danish Aerotech AS, SABCA of Belgium, EADS LV of France, Thales Avionics of France, EADS Deutschland GmbH and Dornier GmbH.

Current projects include the supply of airframe wires and custom design cables for the major Danish armed forces order for Westland EH101 helicopters.

### Military Comms Wires and Cables EMC

We are able to offer a number of different screen options on all cables to meet the EMC requirements of the system. In into consideration such as cable size, weight, flexibility and the screen termination method. Cost may also be a factor that





should be considered. If required, Habia are but are also compatible with other harness one of the few cable manufacturers able system components such as heat-shrink to provide measurements of cable screen boots, adhesives and moulding materials transfer impedance (i.a.w. IEC 46A or IEC from major manufacturers. 96-1) on development or production cables.

#### System Compatibility

Modern communications system depend on functional reliability and minimum down-time. Harnesses are designed to be repaired in the field or easily replaceable. Maintainability will therefore determine how the harness is manufactured and what components are used, eg over-moulding or heatshrink boots.

developed insulation and sheathing materials which not only meet the tough environmental and physical requirements of military systems such as low toxicity, zero halogen, flame retardancy and NBCD,

# CUSTOM DESIGN CABLES TO YOUR SPECIFICATIONS

#### **Design Skills**

Matching system cabling needs to Habia Cable's capability is a practical and an intuitive process. Our experienced engineers understand the requirement and context of that need. Their assessment is fed directly into our advanced design As a material specialist, Habia has facility, where state of the art CAD Hazard (up to 10 sq.mm) programmes produce the technical design solution, ready for costing and production planning. Our skilled designers are able to balance particular requirements of size, weight, technical specification and Airframe Wires and Cables, XLETFE



legislative or environmental demands to produce a solution that is technically complex without compromise. Custom Designed cables are often more cost effective when combined with the low minimum order quantities available.

#### Military Cables Manufacturing Experience:

- UK Type 45 destroyer
- Indian Hawk fighter trainer
- Spanish Leopard main battle tank
- UK Bowman Communications System
- British Astute Class submarine
- OEC Aircraft Carriers
- Westland EH101 helicopter for the Danish armed forces
- Swedish Visby Class Corvettes
- Norwegian Skjold Class MTBs.

#### Habia Defence Approvals Include:

- BS 3G 210 Types A, B and C Equipment Wire, PTFE
- Def Stan 61-12 Part 9 Cables, Radio Frequency, Low Fire Hazard
- Def Stan 61-12 Part 18 Equipment Wires, Limited Fire Hazard
- Def Stan 61 -12 Part 25 Cables, Low Fire
- Def Stan 61-12 Part 31 Sheaths, Limited Fire Hazard
- Def Stan 61-12 Part 33 Supp. 001 -
- Def Stan 61-12 Part 33 Supp. 008 -

Airframe Wires, Humidity Resistant, PTFE Composite (presently unavailable due to raw material sourcing issues)

- VG 95218 Type 20 A Single Core, 600V, 150 deg.C
- VG 95218 Type 21 E Multicore Cable (2-4 core), 600V, 150 deg.C
- VG 95218 Type 23 F Cables with Protective Covering, 600V, 150 deg.C
- VG 95218 Type 25 G Single Core, Highly Flexible with Sheath, 600V, 150 deg.C
- VG 95218 Type 28 D Cables, Shielded, 600V, 150 deg.C

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# Kestrel

### High Comfort & High Protection CBRN Oversuit

The Kestrel is a highly comfortable and highly protective two piece CBRN oversuit harnessing much of the technology used in the Phoenix Lightweight Protection suit. At around 30% lighter than conventional systems, it provides qualified CBRN vapour protection with the added benefit of water/oil repellence and fire retardant coatings, thus making the Kestrel an extremely versatile CBRN protection system for use in multiple CBRN threat environments

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Putting ability first

Frontline

Remploy

Lightweight and breathable, the Kestrel has been tested using the Avon FM12 respirator, and can be configured to suit many other types of respiratory protection

#### **Highlights**

- Conforms to NATO standards
- High protection
- High air permeability
- Greater comfort and low physiological burden
- 20 times launderable
- 10 year shelf life
- Compatible with a range of accessories
- Fire retardant and water/oil repellent
- Stand alone garment or overgarment
- Rugged and durable
- Available in various colours and camo patterns

MEGGÍTI

smart engineering for extreme environments Meggitt Defence Systems Ltd

# WORLD MANUFA **OPERATION 6** NMAN **VEHICLE SYSTEM**

TARGET

ANTIHES

Meggitt PLC, the global aerospace, defence PLC, the global aerospace, defence • Sustained air speed in excess of 200 knot and sensors group, are the world leader and sensors group, are the world leader • Recoverable and reusable in the design, manufacture and operation in the design, manufacture and operation 💿 Catapult launched from land or ships deck of unmanned vehicle systems and of unmanned vehicle systems and Proven in over 25 years of service, world subsystems.

 Free flying aerial targets Agile vehicle systems for use on sea and land

- RF command and control systems
- Autopilots
- UAV Engines

Military Air Vehicle Launchers **Unmanned Vehicle** Systems and Subsystems

Together with all relevant special support equipment including air vehicle Launchers.

MDS products, services and systems are used to support armed forces and security agencies worldwide. In excess of 6,000 aerial targets have been manufactured, which have been in service or operated in more than 40 countries, including 12 NATO Customers.

Meggitt Defence Systems Ltd, a unit of Meggitt Defence Systems, a unit of Meggitt It offers the following primary capabilities: subsystems, including free flying aerial wide targets, agile vehicle systems for use on sea and land together with RF command and control systems, Autopilots, UAV Engines and special support equipment including air vehicle Launchers.

> MDS products, services and systems are used to support armed forces and security agencies worldwide. In excess of 6,000 aerial targets have been manufactured, which have been in service or operated in more than 40 countries, including 12 NATO Customers.

# Remotely Controlled Aerial Target System -Banshee

The Banshee target system provides threat simulation for air defence eapon industries offers the following primary system training, both on land and at sea. Banshee is a mature system that has been

constantly updated during its service • Sustained air speed in excess of 300 knots life of over 25 years to ensure it takes Precoverable and reusable advantage of the latest developments in technology.

- More than 6,000 systems supplied worldwide

 Alternative "plug and play" features to provide weapon specific signatures and performance

# The VooDoo Aerial Target System Voodoo is an affordable, manoeuvrable,

high performance target system that provides a realistic threat for the world's air defence weapon systems.

Featuring a piston engine, to provide a long endurance capability, the Voodoo aerial target which was developed using advanced composite materials and manufacturing techniques well proven in the aerospace and motor sport characteristics:

- Catapult launched and recovered via a parachute

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• Flight to altitudes of over 9,000 metres • Up to four vehicles may be operated simultaneously from one ground station

• Long endurance in excess of 2.5 hours Both the Banshee and Voodoo aerial target systems support the following devices to provide proven weapon specific signatures and performance

- Passive and active radar enhancement
- Radar chaff and infrared decoy dispensing pods
- Pyrotechnic visual and infrared
- enhancements
- Black-body infrared augmentation devices
- IFF Transponders
- Radar Altimeter, low-altitude flight kit
- Real-time Doppler and acoustic scoring

### Fast Inshore Attack Craft (FIAC) - Agile Surface Targets

In addition to UAV target systems, Meggitt Defence Systems Ltd. produces a range of agile surface targets to provide realistic threat simulation of Fast Inshore Attack training system. The fully inflatable hulls • Line-of-sight or OVER-the-horizon control Craft (FIAC). Two systems are offered either for outright purchase and operation small volume of approximately 2m x 1m x

basis as part of Meggitt's international target service capability.

Both of the systems are proven and in service. Sprite is the simpler system which can be supplied in a "knocked down" form to facilitate storage on today's modern warships. It has been designed to be deployed from ships underway at sea and operated by Naval ratings with little or no training. Tiger Shark is a rigid hulled vessel powered by an inboard engine that can be equipped with visual, radar, laser, infra red enhancements and countermeasures to present a convincing likeness of a variety of threats.

# **SPRITE - Maritime Realistic Surface** Target (MRST

The low cost Sprite system has been designed to provide the worlds Naval forces with a simple system that may be deployed from ships on deployment to provide them with a realistic live fire allow the vessel to be packed away into a by the users own personnel or on a lease 1m. To improve survivability the hulls may



be (optionally) foam filled and ballistic protection may be installed to reduce the risk of premature damage to the engine or vessels command and control system.

#### Sprite exhibits the following primary characteristics:

- Lightweight system easily deployed from warships at sea.
- Capable. Speeds in excess of 30 knots. Sea states up to 5
- Simple to operate by ships personnel without formal training.
- Safe. Established safety case and automatic operation minimize risk of collision.
- Cost effective. A range of enhancements are available to improve survivability

## Tiger Shark Target Boat

The Tiger Shark target boat operates at speeds of over 40 knots and is remotely controlled from distances greater than



7 nautical miles. The system is controlled by Meggitt's own "Wizard" or "Merlin" ground control stations which can be preprogrammed for specific operational scenarios including multiple target operations. Tiger Shark exhibits the following primary characteristics:

- High speed manoeuvering sea surface target
- Designed to replicate a FIAC threat in
- swarms of up to 16 vehicles
- Cost effective 'kill' target
- Tactical Applications

All of the Meggitt Defence Systems unmanned vehicle systems are fitted with the MDS, Command and Surveillance Payload Avionics (CASPA), command and control system featuring digital, three axis autopilot, telemetry, and GPS functions, along with other navigational features. Operator control is made through the Meggitt Defence Systems, Wizard or Merlin portable, Ground Control Stations which are able to control and monitor the performance of 4 targets of any type, simultaneously.



# **HIGH QUALITY** MANAGEMENT **AND ENGINEERING SERVICES**

Delivery, Systems & Software Engineering, Supportability Engineering, Support Solution Design Service, Safety Engineering & Assurance, Training Analysis, Design & Delivery, Human Factors, Operations Analysis & Modelling and Cyber Security.

#### Persides

Persides is an established and growing force in the defence, security and energy markets offering high calibre services for a diverse client base.

It is increasingly difficult for an organisation to predict exactly the skills and capacity it



The company's range of service offerings needs to deliver its dynamic and evolving driven, Persides tailors its' offering to counter include; Business Winning & Proposal objectives. Persides offers high quality these constraints and is always prepared to Generation, Project Mobilisation, Control & management and engineering services to supplement client capability and enhance performance where required. Services Our Key Products and Services include: offered include:

- Business Winning & Proposal Generation
- Project Mobilisation, Control & Delivery
- Systems & Software Engineering

 Supportability Engineering - Integrated Logistic Support (ILS), Reliability & Maintainability

- Support Solution Design Service
- Safety Engineering & Assurance
- Training Analysis, Design & Delivery
- Human Factors
- Operations Analysis & Modelling, Whole-Life Cost (WLC), Life Cycle Cost (LCC)

foundations of a core set of principles which align to an approach of delivering Value, Trust, Excellence in support of our Customers. Persides provides a multi-layered approach to the way it contracts its services. Understanding the constraints faced by our • WCSP – DE&S clients, whether they be finance or policy Medium Armoured Tracks Team (MATT)

share risk and accountability.

# Key Land Based Equipment Programmes

#### CBRN - DE&S / Industry

Persides staff have directly developed various ILS deliverables including the ILS Strategy, ILSP, SOW, Use Study for Man-Portable Chemical Agent Detector (MCAD), Lightweight Chemical Agent Detector (LCAD), Collective Protection Chemical Agent Monitor (COLPRO CAM), Persides has built its reputation on the Integrated Biological Detection System (IBDS), Maritime Biological Detection System (MBDS) and the Aircrew Protection Equipment and Detection (APED) programme.

Warrior Capability Sustainment Programme (WCSP) - R&M Analysis: Persides conducted an independent review to re-evaluate and verify current MoD reliability figures from the WCSP System Requirements Document (SRD) and develop a generic WCSP reliability model to inform potential future requirements.

#### PECOC DE&S

Personal Equipment and Common **Operational Clothing (PECOC)** for the UK MOD Defence Clothing Integrated Project Team (DC IPT) - Persides were responsible for the development of the ILS deliverables in particular in the ILSP, Use Study and the SOW. The aim of this Use Study was to provide an overview of the PECOC programme and the current logistic management and sustainment of the existing Combat Soldier (CS) 95 system.

#### • FIST - Future Integrated Soldier **Technology - Thales Land and Joint**

Persides worked as a Future Integrated Soldier Technology (FIST) tier one partner within the Thales Prime Contract Management Office (PCMO) during the Assessment and Delivery phases of the core programme and numerous Urgent operational Requirements (UORs). Persides was responsible for the definition and delivery of the Support Solution with a particular focus on implementation of Operational Availability-based solutions.

Persides has conducted ILS programmes, developing and delivering support solutions for a number of FIST procured equipment's. In addition to our work within the PCMO, we have provided support to suppliers of equipment into the FIST programme including Vectronix-Wilcox, Shield and Qioptiq.

### Services: Business Winning and Proposal Generation

Persides has a proven track record of winning and delivering defence and security programmes on behalf of a range of suppliers from small businesses to large multi-national prime contractors. Our expertise in business capture, bid management and programme delivery will ensure that you set out with a winning strategy that ensures a high probability of winning tenders and subsequently delivering profitable programmes to cost, time and performance. Whatever the stage of the acquisition lifecycle, Persides has vast experience across all domains of programme delivery. We will



assist you in making your bid strong in every management of multiple hardware, software area, and ensure that your buyer has high confidence in your ability to meet and even exceed their expectations.

# Military Systems and Software Engineering

We have gained our wide engineering experience through participation in and

and integration programmes where our staff have been fully committed to the delivery of innovative solutions in support of our customers. Our engineering capabilities include:

• Requirements and System Architecture development

Software code development and





verification

Systems Integration

 Verification and Validation of both Hardware and Software programmes

# Supportability Engineering

Persides has an extensive depth and breadth of capability and experience which enables the successful management and execution Supportability Programmes. Our of Supportability Engineering /ILS capability includes the following disciplines:

- Contractor Logistic Support
- Availability and capability contracting solutions
- Support Solution performance based modelling and simulation
- CONDO Management
- Supportability trade-off analysis
- Technical Documentation

# Support Solution Design Service

Persides has established a structured and proven approach to the design of support service solutions. The approach minimises likely exposure to potential risks and increases the likelihood of meeting contractual service and availability requirements. The approach combines service sector good practice techniques with Model Based Systems Engineering (MBSE). The activities within this approach are tailored to suit project specific needs and applied by Persides consultants working closely with client organisation personnel. Example activities include; Stakeholder Analysis & Management, Value Proposition,



Requirements Analysis & Modelling, • Highly experienced Training design Behaviour & Functional Analysis, Qualitative and Quantitative modelling, Structured Solution Design and Solution Test & Acceptance.

# Safety Engineering and Assurance

Persides recognises that robust safety management is a demanding responsibility and dependent upon the application of sound analytical, creative and engineering skills, based on extensive technical and domain knowledge. Understandably, there is not one safety management approach that fits all situations and customers have very specific requirements to consider. Our safety specialists are suitably qualified, experienced and dynamic engineers with an unwavering focus on attention to detail and customer needs.

Our core safety knowledge and capabilities include:

- Def Stan 00-56 and 05-123. POSMS.
- JSP375, 418, 430, 454, 553, 602 and 815 Independent Safety Advice and Audit
- Hazard identification, analysis and
- management using CassandraTM
- Safety Case construction and Safety Case Reporting

# Human Factors and Training Analysis, Design and Delivery

Our Human Factors (HF) experts specialise in the application of UK MoD and US DoD HF standards such as Def-Stan 00-250 and Mil-Std-1472G, as well as the wider HF applicable standards such as Def-Stan 23-09 for Generic Vehicle Architecture.

We have applied our Training experience to develop a range of innovative tools to enhance the analysis and design process including an analysis methodology which evaluates the fidelity requirements of task characteristics, rather than of the tasks themselves. This innovative approach supports accurate quantification of low and high fidelity training options, increasing the cost-effectiveness of the selected training solution.

We meet the challenges of Training in today's environment by providing:

• Expertise in Training Needs Analysis and Human Factors Integration

- specialists
- Fully gualified and experienced Training instructors

# Military Operations Analysis and Modelling

For any Defence or Commercial project, it is vital that a clear understanding is developed at an early stage of how costs will arise across the full system life-cycle, covering all Defence Lines of Development (DLoD). Persides has both the expertise and experience to quantify the variability and sensitivity associated with Whole-Life Cost (WLC) and Availability drivers, to determine potential risks of taking candidate solutions forward to maturity and in-service support, and delivering these key customer requirements. Exploitation of the Witness™ toolset enables dynamic process simulation providing a highly flexible and scalable capability for business process, cost and sensitivity analyses, including:

- Service based modelling techniques
- Operational Availability vs. cost
- Training regime effectiveness and cost vs. fielding and operational sustainment requirements
- Cost of production vs. capability fielding profiles
- Optimisation of support infrastructure solutions against affordability targets

#### Customers

Persides provides services to customer and industry organisations in the defence, security and energy markets. Example customers include; UK MoD, DE&S, Dstl, BAE Systems, Boeing, Thales, Lockheed Martin, Raytheon, Kelvin Hughes, General Dynamics, Vectronix Inc, Force Protection Europe, Jankel Armouring and Selex ELSAG.

#### Personnel

Persides capabilities are delivered by a complementary blend of high calibre ex-Military, academic, professionally qualified and experienced personnel who are equipped with leading edge tools and processes. Persides employees are selected and tailored for specific roles based on their technical expertise, experience and personal skills. If you are interested in a career with Persides visit our careers pages www.persides.com/careers

# **Outacom<sup>TM</sup>** Military Public Address System

> Clear external, local audible messages up to 300m

- > Reduces risk, escalation of violence & collateral damage
- > Integrated intercom or standalone configuration
- > MIL-STD 810F 461E DEF-STAN 00-35

300m

Shout before you shoot' - required by military doctrine on all future tactical vehicles.

# 80 years of active service.



24 – 25 April 2013 Olympia, London



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# LEADING **DESIGN, & IMPLEMENTATION OF SATELLITE & RADIO COMMUNICATION**

Spectra Group (UK) is a leading provider of communication services. These services are voice and data services in areas where either none exist or where high intensity conflicts, natural disasters, pandemics or terrorist attacks may have destroyed existing networks.

We are experts in the design, delivery, implementation and ongoing support for a comprehensive range of Satellite and Radio Spectra is a world leader in providing

supplied to clients operating around the world in many different market sectors including Defence, Government, Aid, Security, Oil and Gas and commercial.

# Satellite Services



"Added Value" services across satellite communication bearers globally.

**CiNetVu** 

We use the Inmarsat services for small, lightweight, very portable applications and VSAT services for higher bandwidth applications in relatively static locations.

An integral part of our "added value" satellite service offering is our 24 / 7 Network Operations Centre (NOC) which provides monitoring, helpdesk support and fault resolution to all satellite deployed assets.

# Inmarsat Mobile Satellite Services

Inmarsat have been at the forefront of mobile satellite services for over 30 years and using its current fleet of 11 satellites provides voice and data communications globally whenever and wherever they need on Land, Sea and Air.

The service is extremely flexible and provides voice and data communications on portable, lightweight, easy to use terminals. You do not need to be an specialist

communicator to be able to set-up and operate an Inmarsat terminal.

In 2010 Spectra was awarded "Gold Partner" Inmarsat status which gives us a closer relationship with Inmarsat which enables us to provide a higher level of support to our customers.

# VSAT Satellite Ground Stations (SGSs)

Spectra operates a VSAT network utilising partnered Satellite Ground Stations (SGSs) at strategic locations that provide global coverage. These SGSs are located in the US, Europe and Asia and are linked to our core infrastructure ensuring an extremely high level of assurance and Quality of Service.

We are able to facilitate both SCPC and TDMA for dedicated and shared VSAT services depending on individual customers requirements.



# Satellite Communication System - SHADE

SHADE is a Communication system that has been designed to enable Nodes (SHADE DCN & SHADE Lite) to rapidly deploy and deliver voice and data services across a Satellite, Leased Line, GPRS or ADSL bearer to SHADE Central, a UK Hub providing connectivity to the World Wide Web, ISDN,

PSTN or dedicated private networks.

Spectra also provide Telecom Solutions, Training and Resource Services.

More information can be found on our website at :

#### www.spectra-group.co.uk

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# Gaseous Tritium Light Sources



# Betalight b.v is the leading supplier of Gaseous Tritium Light sources, also known as "Betalights" and Gaseous Tritium Light Devices.

Our products are used in safety and emergency like watches, gun sights, compasses, gauges, dials After the service life of 10/15 years we take applications all over the world.

and other lighting applications.

# back the expired products for recycling.

#### **Gaseous Tritium Light Sources**

We also provides Tritium illumination for over 600 NATO stock numbers / weapon systems

Betalight's are unique, providing a highly reliable and continuous light source throughout a long service life of 15 years without the need for any kind of electrical power.



# Westwire HARNESSING

Specialists in the design and manufacture of ruggedised electrical interconnect systems. Supply high integrity, cable harnesses to the Aerospace, Defence, Marine, Mass Transit and Commercial markets.

# SERVICES INCLUDE

- Design & Rapid Prototyping
- Program Management Production
- On-Site Installations
- Ruggedised Sealed Harnesses
- MIL-STD-1553B Networks
- RF Cable Assemblies
- Box Build
- Extendable Coiled Cable Assemblies
- Ruggedised Cat5/5e, 6 & 7 Cable Systems
- Fibre Optic Cable Assemblies
- Cable Assembly Repair & Overhaul

Two manufacturing sites in the UK, Swindon & Cinderford. Engineering support is managed from our Swindon plant.

# Westwire Harnessing Limited

Headlands Trading Estate, Headlands Grove, Swindon, Wiltshire SN2 7JQ T:01793 537217 E: sales@westwireharnessing.co.uk

www.westwireharnessing.co.uk

# Defeating IEDs with a MOTS Design **VECO**

In recent years, for well understood reasons, armoured and protected vehicle design has focused heavily on defeating the threat posed by IEDs and the other methods of attack which tend to characterise asymmetric warfare.

This design path has reached its apotheosis in such vehicles as Mastiff, MATV and Foxhound, all of which are driven by the need to counter the most prevalent operational threat.

As the focus moves away from counterinsurgency to contingency operations with the impending withdrawal of forces from Afghanistan, vehicle designers face a new challenge: how can they best design a vehicle which incorporates the lessons learnt so expensively in Iraq and Afghanistan, but which can still meet the demands of conventional operations. Furthermore, how can they achieve this against a background of ever shrinking defence budgets?

One way in which a vehicle manufacturer can significantly reduce the up-front costs associated with vehicle development is to maximise the use of existing assemblies when designing a vehicle and, indeed, in many cases particular major assemblies are mandated either by the customer (for reasons of commonality) or by the manufacturer (to reduce development costs and speed the process). Although there is



beneficial, it can also constrain designers such that they have to compromise their assigned design objectives in order to accommodate the use of the assemblies in question. In order to overcome any such issues, the most beneficial approach is for the development team to embrace the features of the mandated assemblies and, through innovative designs, incorporate these into the prototype.

The design of the SUPERAV, Iveco's class leading amphibious 8 x 8 demonstrates this approach in practice. In this case, the design team was presented with a series of design goals which

no doubt that this reuse of assemblies can be had been driven by a comprehensive requirements capture process, identifying both the best performance of comparable vehicles, which were to be matched or exceeded, and the performance requirements sought by the user. In programme terms, one of the key requirements was a short and cost effective development programme in order to match anticipated customer timescales. In order to achieve this, the design team was mandated to use the chassis, transmission and running gear of Iveco's highly successful 8 x 8 Centauro family, and the Cursor 13, a COTS Iveco engine drawn from range of commercial heavy truck engines. One of the great benefits of each of



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these assemblies was the fact that the reliability of each element had been proven over millions of kilometres of running.

Use of the Centauro chassis had, at first sight, both advantages and disadvantages. On the plus side, the H transmission configuration allowed any resultant vehicle a lower centre of gravity than other 8 x 8s which used a single central drive shaft. Similarly, the H transmission allows a degree of redundancy if wheel stations on the 3rd and 4th positions on either side are put out of action. On the negative side, the very characteristics which made the H configuration such an effective choice for an 8 x 8 mounting a full pressure tank main armament – Centauro is the only 8 x 8 capable of firing both a 105 mm and 120mm through a 360 degree arc – militated against its ability to counter under vehicle blast. This was because, whilst the original design aimed at maintaining a low silhouette by placing the drive shafts outside the crew compartment rather than, as with more conventional designs, underneath it, countering the effects of blast is best achieved by increasing the distance from the centre of the blast: the effect of blast is reduced by the cube of the distance from the explosion.

Rather than seeing this as a hindrance, Iveco's Having vented as much blast as possible to the engineers worked to make a virtue of necessity. side of the vehicle, the next step was to manage

As a first principle, they focused their design work on the crew, as their position in the vehicle was key to the survivability which the vehicle could afford them. Accordingly, each crew position was equipped with a seat mounted from the roof of the vehicle. This contrast with the more common practice which is to mount accorded particularly well with the need to mine blast seats from the hull sidewall, which, whilst easier technically, provides significantly less blast attenuation.

The next step was to configure the hull to mitigate the effects of blast. Standard practise to achieve this is to construct a V shape hull, something which, at first sight, appears easier to do with a standard drive train than the H transmission. In fact, with intelligent design work, this proved not to be the case. By raising the hull slightly using a sub-frame,

and by providing clear blast escape channels to the side of the vehicle, blast effects are mitigated dramatically.

The crew also benefits from the absence of any transmission components under the centreline of the vehicle which can, in the event of a mine attack, act as secondary projectiles.





the remaining blast. This is achieved by the installation of blast absorbing materials between the outer and inner floors, presenting blast from being transmitted through the floor. This approach to countering the effects of blast provide levels of amphibiosity sufficient to allow the vehicle to swim fully protected and with a full crew and necessary mission equipment. Where a traditional amphibious design will tend to be quite large, to ensure it has adequate volume to float, and relatively lightly protected, to reduce weight, the SUPERAV design focuses protection only on the areas around the crew, with flotation being provided by the fitting of very lightly protected compartments around this protected citadel.

These also enable the carriage of mission equipment, with personal kit being carried inside the vehicle. Careful configuration of the flotation tanks ensures that these fit within the same envelope as comparable vehicles but, because the protection is focused on the areas which matter, class leading protection can provided but with a 20% weight saving. In consequence, SUPERAV can deploy on amphibious operations fully protected and crewed and fitted with a remote weapon station, swimming in conditions up to Sea State 3.

The achievement of Iveco's engineers has therefore been to avoid many of the critical compromises inherent in developing a well protected amphibious vehicle. The end product is a vehicle whose protection matches or exceeds even non-amphibious 8 x 8s, a result which owes everything to a well managed, closely focused and highly innovative engineering approach.



# The World's Most Advanced Puncture Protection System

Tyre Protector is a Mono Propylene Glycol gel engineered and produced in the UK in two formulas, Heavy Duty and High Speed. Once professionally installed, Tyre Protector will provide permanent puncture protection for the entire life of the tire. Classified as non-hazardous and eco-friendly, Tyre Protector has been safety approved.

#### HOW TYRE PROTECTOR WORKS

- Tyre Protector is applied via the tire valve stem or directly into the tire when mounted on the rim.
- As the tire rotates, the gel is evenly distributed forming a protective barrier inside the tire.
- When a puncture occurs, the gel instantly seals the hole and creates a permanent seal guaranteed for the life of the tire.

# Tyre O Protector

www.tyreprotectorlasamericas.com

#### THE BENEFITS OF USING TYRE PROTECTOR Reduce Vehicle Downtime

Tyre Protector keeps the vehicle running even after a puncture, reducing the downtime of your vehicles.

#### **Reduce Fuel Costs**

Tire under-inflation causes increased rolling resistance which significantly reduces fuel economy. Tyre Protector helps maintain the correct air-pressure, thereby maximizing fuel economy and saving you money on every kilometer that you drive.

#### **Help Maintain Constant Air Pressure**

Tires can experience slow air loss via punctures, damage to the tire, wheel or rim or even "tire porosity". Tyre Protector prevents airloss by immediately sealing punctures or damage in the tread area.

#### **Extend the Life of Your Tires**

A 2009 study by the European Union concluded that the majority of cars and trucks operate with one or more tires under-inflated. Under-inflated tires generate heat, wear more quickly and unevenly and eventually experience blow-outs. Tyre Protector helps prevent heat build up and under-inflation and increases tire life significantly.

#### **Improve Safety Conditions**

Tyre Protector has been approved and accredited in Australia for use in Underground Mining where safety requirements are considered to be the highest in the world.

#### **VEHICLES RUNNING ON TYRE PROTECTOR**

Tyre Protector may be installed on any radial or bias tubeless tire and is currently in use around the world on the following types of vehicles:

Mining
Construction
Earthmover
Agricultural (tractors, harvesters and implements)
Industrial
Cargo Trucks, Trailers and Buses
Passenger and 4 x 4
Ambulance, Fire and Police
Government and Military
Security and Armored Vehicles
ATV and Quad Bikes

### Permanent Puncture Protection



Engineered and Produced in the UK

# UTILITY FLAME© The hazards of flameless ration heaters.



Flameless ration heaters [FRH] are devices used for the heating of Meals, Ready-to-Eat [MRE], which are used extensively in the military as a method of providing meals to soldiers while in the field. MREs with FRH are well known to pose certain fire, explosion, and health-related safety issues while in shipment, where typically hundreds of these meals are packaged together in a single shipping container. They are considered to be a hazardous material under the United Nations publication Recommendations on the Transport of Dangerous Goods and in that publication are listed as "dangerous when wet."



#### FAA AND DOT WARN OF DANGER **OF SELF- HEATING MRE**

According to a report by the US Federal Aviation Administration entitled The Fire

Safety Hazard of the Use of Flameless • Some react vigorously or explosively on Ration Heaters Onboard Commercial contact with water Aircraft: "While it is well established that • May be ignited by heat, sparks, or flames the shipment of a large quantity of these • May reignite after fire is extinguished flameless heaters poses a significant fire safety risk, this report examines the potential hazard associated with the use of these Meals, Ready-to-Eat in an aircraft cabin, or the accidental activation of flameless ration heaters in a confined area aboard the aircraft, such as in overhead storage bins or a cargo compartment." "Tests were performed with both individual MREs in an open environment, and; multiple MREs in a confined space to examine the potential hazard associated with their use in an aircraft cabin. The tests also examined accidental activation of FRHs in a confined area aboard the aircraft, such as in overhead storage bins or a cargo compartment." "Temperatures in excess of 215°F (102°C) and violent ignition events were observed. It is evident from the tests that the release of hydrogen gas from FRH in these MREs is of a sufficient quantity to pose a potential hazard onboard a passenger aircraft."



The Emergency Response Guidebook published by the United States Department of Transportation covers FRHs EXPLOSIVE DEVICES Further, the US Army and lists the potential fire and/or explosion hazards, including:

#### Produces flammable gases on contact with water

• May ignite on contact with water or moist air



In fact, a major product of the reaction is hydrogen gas. The release of hydrogen is the primary cause of any fire safety concern surrounding FRHs and has resulted in at least one cargo fire during shipment. A container filled with FRHs was loaded onto a container ship at a naval station in Guam. The ship's crew detected leaking hydrogen from the container and removed it from the ship. Fire fighters decided to attempt to move the contents and spread them among three separate containers. While performing this operation, the contents burst into flames.



Click Here For Story FRH AS IMPROVISED regards FRH in MREs as a potential weapon and as hazardous waste.

"FRHs can pose a tactical risk if the enemy gets access to them." US Army Environmental Guidance Handbook (Page 23)

ration heaters (FRHs) every year but ensure that unused heaters...are not concerns arise when unused heaters are disposed of in the regular trash [but] are disposed of in the regular trash. EPA placed collected by supervisory personnel. discarded, unused heaters in its reactive Collecting and storing unused MRE heaters hazardous waste category since they [with] the...intent...not to...reuse...is a contain compounds that heat up when violation of Federal law." Ьy water." Defense activated Environmental Quality Program (page 47)



Click Here For Information OTHER STATE NATIONAL **GOVERNMENTS** AND REPORTS ON THE HAZARDS OF FRH "IMP [Individual Meal Packages] containing the FRH...are forbidden in carry-on or



#### **Transport Canada**

checked baggage."

"If the MRE is exposed to fire and the magnesium powder ignites, a Class D Combustible Metal fire will occur. In the event that the plastic pouch containing the FRH melts and the contents are exposed to water, hydrogen gas may be produced. If the hydrogen gas that is produced accumulates in a confined space there is a risk of fire and/or explosion, and risk of exposure to a respiratory hazard."



California Dept. of Forestry and Fire Protection

hazardous waste. Organizations which States Transportation Security Agency. not be a hazardous waste."

"The Army issues millions of flameless utilize MRE's must establish procedures to (Not even the US Air Force will fly with the



**US Dept. of Agriculture Forest Service** 

"The hazards present with transporting Meals Ready to Eat (MRE) which can contain Flameless Ration Heater (FRH)... indicates that...these may contain regulated dangerous goods."



International Civil Aviation Organization

THE ALTERNATIVE The alternative heat source to the FRH is UtilityFlame<sup>™</sup> portable fire gel. It fulfills all the heat source needs of the modern warfighter, and is a perfect fuel for cooking and as a fire starter. It is approved by the US Defense Logistics Agency, as well as by the armed forces of Canada and Norway.



It is so safe that it is approved for transport "Unused MRE heaters...are considered...a on commercial airlines by the United

FRH unless it is double sealed).



Utility In a memorandum to the Commanders of the XVIII Airborne Corps and the United States Army Special Forces Command, Brigadier General Benjamin Freakly wrote: "101st Airborne Division (Air Assault) has an urgent operational need for [Utility Flame<sup>™</sup>] gel to enable our soldiers to heat items (consumables) in a safe and environmentally sound manner. This ability would greatly enhance the morale of our soldiers in support of contingency operations."



has been evaluated for safety and found to be non-hazardous and safe for transport: "If this material becomes a waste, it would



US Occupational Health & Safety **Administration** "This material is not subject to DOT regulations."



US Department of Transportation ARMY Additionally, the heat to mass ratio allows TESTED, COMBAT PROVEN Utility Flame™ is odorless, smokeless, economical, nontoxic and friendly to the environment. Utility Flame<sup>™</sup> has been tested and approved by the U.S. Army Research, Development and Engineering Command. Their report states: "[Utility Flame™] is the only fuel which meets the following user requirements: it is tactical in that it burns with a steady blue flame which does not disclose the warfighters' position; has negligible vapor pressure that allows it to be declared a non-flammable substance and therefore not subject to Department of Transportation hazardous material regulation, which allows ease of transport to overseas destinations; and has completed safety and health data sheet, required for immediate material fielding.

the warfighter to carry lesser amounts of fuel than other to complete their mission."





**All-Purpose Heat Source for Field Rations** www.utilityflame.us





# NATO Radial NBC / CBRN Filters manufactured to STANAG 4447

Within the range of NBC / CBRN filters produced by EMCEL is the latest generation of NATO radial flow combination filter, manufactured and tested in accordance with **STANAG 4447**.

In service with many NATO and other Navies, this filter provides NBC / CBRN protection through a combination of HEPA media and impregnated carbon granules integrated within the same casework.

Several filters are normally utilised within a COLPRO (Collective Protection) system which provides positive pressure & safe breathable air to within a sealed area.

Filter airflow rated at 300m<sup>3</sup>/hr. Weight: 30 Kg.

#### AEP 54 Gas Test Compliant



## **Dummy and Training Radial Filters**

Manufactured to the same dimensions as the actual NATO Radial NBC / CBRN filter above, these filters are available in 2 versions:

#### 章 Dummy Radial Filters

Dummy Radials are designed and manufactured to simulate the **pressure drop** (resistance) when installed in COLPRO systems.

This allows systems to be run normally when NBC protection is not required. Utilising Dummy filters for testing, training and in no-threat situations reduces the usage of real filters, thus giving considerable cost savings.



#### 🚭 Training Radial Filters

Training Radials are manufactured to simulate the **weight** and **pressure drop** (resistance) when installed in COLPRO systems. These filters give same benefits as the Dummy Filter plus the ability to train personnel and test systems with a filter of the same physical weight as an actual NATO NBC /CBRN Radial Filter.

It is important to note that the Dummy and Training Radial Filters do not have any NBC/CBRN filtration capabilities and will not provide any NBC / CBRN protection.

#### **EMCEL Filters Limited**

Blatchford Road, Horsham, West Sussex RH13 5RA, UK Tel: 0044 (0)1403 253215 Fax: 0044 (0)1403 217011 email: nbc@emcelfilters.co.uk www.emcelfilters.co.uk





Certificate No. FM 24138

# L-3 WESCAM Successfully Completes 30-Day Flight Demonstrations of Newly Launched MX<sup>TM</sup> Designator Systems WESCAM

L-3 WESCAM announced today the • MX-RSTA testing and demonstration in successful in-service demonstrations of its MX<sup>™</sup>-Series of designator systems at the U.S. Afghanistan Army's Yuma Proving Ground in Arizona. Demonstrations of the MX-10D, MX-15D, MX-25D and MX-RSTA systems were conducted over a 30-day period on over four different aircraft and one ground vehicle. Operational hours spent on the trials totalled 100.

# MX<sup>TM</sup> Designator Systems

"This extensive effort was fully funded and executed by L-3 WESCAM as a risk-reduction effort for various customers in response to constrained budgets in the current economic climate," said Paul Jennison, vice president of government sales and business development for L-3 WESCAM. "During these times, L-3 WESCAM remains committed to product evolution in support of the war against terror and our warfighters deployed globally."

#### The tests and demonstrations conducted were:

• MX-10D gunfire and designation testing from an MD540 helicopter firing an FN HMP 400 .50 cal machine gun

• MX-10D gunfire and designation testing from an MD500E firing an M134 mini-gun in both single- and dual-firing configurations

• MX-10D, MX-15D and MX-25D integration and testing of two weapon control systems from an MD500E helicopter and a C208 Caravan

• MX-25D designating for two Hellfire missiles shot from an AH-64D Apache Longbow helicopter

environmental conditions similar to those in

Full-motion video of these demonstrations is being made available to customers upon request. Contact L-3 WESCAM for more information.

L-3 WESCAM is a world leader in the design and manufacture of stabilized, multi-spectral imaging systems.

To learn more about L-3 WESCAM, please visit the company's website at www.wescam.com. Headquartered in New York City, L-3 employs approximately 51,000 people worldwide and is a prime contractor in C3ISR (Command, Control, Communications, Intelligence, Surveillance Reconnaissance) systems, and



modernization and maintenance, and national security solutions. L-3 is also a leading provider of a broad range of electronic systems used on military and commercial platforms. The company reported 2012 sales of \$13.1 billion.

To learn more about L-3, please visit the aircraft company's website at www.L-3com.com.



# BONDLINE

#### ESD GARMENTS

These garments are manufactured using a static dissipative material for use in ESD protected areas.

The fabric is constructed using 65% polyester, 32% cotton and 3% conductive yarn. They are lightweight and comfortable and have 3 pockets. (An ESD warning symbol is attached to the breast pocket.)

They are machine washable up to 60°C and are available in White or Blue.



Size Chart	Small	Medium	Large	X Large	XX Large	XXX Large
	43 inches	45 inches	47 inches	49 inches	53 inches	56 inches
	109cm	114cm	119cm	124cm	134cm	142cm

All dimensions represent garment chest sizes. Allow a tolerance of +/- 0.5 inch (13cm)

Bondline Electronics Ltd Unit 6, Rivergate, Rivermead Ind. Est., Swindon, Wilts. U.K. SN5 7ET Tel 01793 511000 Fax 01793 514142 E-mail sales@bondline.co.uk www.bondline.co.uk

# Marshall Wins Queen's Award for Enterprise 2013 in Innovation Category

Deployable CT Scanners in service with three solutions to problems previously thought to be international Armed Forces including the UK have led to Land Systems, part of Cambridge based Marshall Aerospace and Defence Group, being awarded the Queen's Award for Enterprise 2013 in the Innovation category, the company announces today.

# Deployable **CT** Scanners

The Innovation Award also includes the Company's pioneering work designing a deployable forensic laboratory fitted into one shelter to conduct DNA and clean room forensic analysis. The facility and process started life housed in a permanent building, Land Systems then developed a three shelter system which then led to the development of the single shelter capability.

"This award demonstrates Marshall's unrivalled expertise in developing complex deployable

too difficult," says Ray Cutting, Managing Director of Land Systems, Marshall Aerospace and Defence Group.

"In both cases we worked very closely with the customer and our partners to create a solution which is deployable over very rugged ground and gets the facility to where it is needed to provide real benefits for the forces on the ground, be they military, security or humanitarian." he added.

The Queen's Award for Enterprise Innovation category requires companies to demonstrate outstanding innovation and substantial improvements in performance and commercial success over the last two years. Achievement is assessed for invention, design or production, the performance of the product submitted, marketing and distribution, and after sales support.

"This award is testament to the capabilities of our engineers and project managers to work together with our customers and partners to





develop solutions which can have a life changing effect. I am extremely proud of their work and congratulate them on this award which is richly deserved," said Steve Fitz-Gerald, CEO, Marshall Aerospace and Defence Group. The CT Scanner is a sophisticated, delicate and nowadays essential element in the clinical diagnosis path. Historically, these units have not been available to medical teams working within hostile environments. The Marshall unit can be transported by sea, rail or on the back of a truck and when it arrives it can be setup by two people and carrying out its first scan within two hours. During transportation the Philips CT Scanner is protected from shocks and vibrations using a patented system developed by Marshall's engineers.

The deployable forensic laboratory, which can be up and running within minutes of arrival, has taken all the critical elements to enable forensic agencies to rapidly carryout DNA investigation of buccal swab, blood, hair, tissue and contact trace material to provide investigating officers and intelligence services with information to carry out their roles more quickly and whilst the scene is still "live". Integral to the design of the unit is maintaining the internal environment to ensure that none of the collected evidence is contaminated.





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