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108 COUNTRIES
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76%

OF ATTENDEES
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SPECIFIERS (DSEI 2015)

1,683

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REPRESENTING THE
WHOLE SUPPLY CHAIN

42

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DELIVERS AND PROTECTS



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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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Integrated Communications



Intercoms

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- Backwards compatible with ROVIS systems with same form factor, cable assemblies and mounting points



TacG2 Vehicle Intercom Systems modules

Mast Systems

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- Telescopic masts – Options available from 4m up to 50m extended height
- Telescopic lifting poles – Winch and belt operates designed to be used at land and at sea
- Tripods – Options available from 2kg up to 50kg top loads
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- Complements Cobham's wide offering of antennas



Deployment of lightweight telescopic EXL-mast

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- Cancellation performance 60dB (typical)
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ICE 7201 Multi-Radio Interference Cancellation System

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Counter Threat Technologies



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20-7009 CRPA

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- Vehicle – Multi-Channel GPR for IED and mine clearance operations
- UGV - Fast and simple deployment onto UGVs removing operators from harm's way
- UAS – Modular GPR system mounted to UAS for clearance of large areas remotely
- Training - Fully-immersive virtual-reality C-IED training systems



AMULET Vehicle-Mounted Mine Detection System

Counter-UAS Antennas

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MINEHOUND VMR3G



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MAKING THE WOR

SURPLUS AND OBSOLETE SMALL ARMS AMMUNITION DESTRUCTION

It is a fact that throughout the world, there is a need to destroy surplus and life expired ammunition. This can be in the form of in-theatre destruction during military operations or small-scale destruction for companies or police forces around the world. Larger projects to destroy stockpiled ammunition of all natures and types are also prevalent at this time especially in countries where the downsizing of military forces has taken place and has left large stockpiles/stores of redundant, surplus and obsolete munitions

EOD Solutions Ltd is experienced in all types of destruction and management of stockpiled ammunition. The company has dealt with all types of ammunition from around the world and has undertaken stockpile management alongside the destruction process. This has involved the hiring and training of local workforces to NATO standards, co-ordination and liaison with Military depots, planning and organising of the daily destruction, transport, loading and unloading, accounting, and final destruction.

Destruction methods depend on the client but the company has used both open detonation, open burning, Incineration and reverse engineering. In one such case EOD Solutions Ltd worked with the local ammunition production facility to

reverse engineer mortar ammunition and remove the explosives for onward sale to civil engineering use.

EOD Solutions Ltd has undertaken weapons destruction programs that have destroyed in excess of 130,000 weapons and reduced them to scrap. The destruction of the small arms weapons helped the host governments close down obsolete depots where the weapons were stored. This also gave them more flexibility to redeploy manpower and other resources.

In recent years EOD Solutions Ltd has undertaken area clearance projects to clear ammunition storage facility that had unexpectedly encountered an explosion of poorly stored ammunition. This took in excess of four years to complete as both surface and sub surface clearance was undertaken and included removal of scrap and buildings and landscaping the area to allow it to be returned to the owners. This also involved the use of heavy earth moving equipment and various electronic search equipments. The workforce of in excess of 60 personnel was also trained in the methodologies and safety that were used on the project. A bridge had to be repaired and a river had to be rerouted by the company to allow it to be cleared of ammunition. All this undertaking was to enable the project to be completed so that the local population could return to the area and farm it as they had before.

One of the largest issues with stockpiled ammunition is the large quantities of Small Arms Ammunition which is left surplus to requirements. The destruction of small arms has always been difficult due to the small sizes involved. EOD Solutions Ltd is well versed in the destruction of SAA and has developed the TRansportable Ammunition Destruction System (TRADS)

EOD Solutions Ltd in conjunction with CALDO engineering have developed the Transportable Ammunition Destruction System (TRADS) to destroy SAA in an environmentally responsible manner. The TRADS to date has been utilised to destroy SAA in Albania, Bosnia and Herzegovina and



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Afghanistan. There are currently three systems available the TRADS 40 and the TRADS 20, both of which are incinerators that employ ceramic filtration backed up with a catalytic filter to ensure complete cleaning of the gases. Recent improvements to the system have allowed the system to clean the gases even more efficiently to comply EC Emissions Directive 2007 and with the USA Environment Protection Agency guidelines, one of the most stringent in the world.

The third system is a patented design, which does not use incineration but separates the ammunition into its component parts for reuse or scrap. This system is smaller than the incinerators and has a smaller production rate but this can be increased by the use of more systems.

All systems are constructed in ISO 20 foot container frames to allow overseas and air freight delivery and vehicle transportation. The frames also allow for ease of maintenance and observation during ammunition processing.

The TRADS 20 system shown here is designed to undertake medium and small-scale destruction of SAA where the ammunition is in dispersed in different locations. The system will destroy up to one and a half tones of ammunition per day. It utilises a furnace that allows small quantities of ammunition to be destroyed, and then the ammunition is emptied into a scrap bin for further processing such as Free from Explosives inspection. It can then be filled again with the next load of ammunition for destruction. As this system is enclosed it means that the destruction process and the emptying is a continual cycle and automatic and is completely safe for the operators.

The TRADS 40 system shown here is designed to undertake large-scale destruction of small arms ammunition where the ammunition is in one depot or at a central receiving station. TRADS 40 will destroy a minimum of five tones of loose ammunition per day. It is environmentally friendly and conforms to the EC Emissions Directive 2007. Recent improvements to the system have allowed the system to clean the gases even more and thus EOD Solutions Ltd are able to comply with the USA Environment Protection Agency guidelines, one of the most stringent in the world.

The system utilises a rotary furnace to allow constant feed of



the ammunition that is collected in bins for further processing such as Free from Explosives inspection. It requires no infrastructure as electrical power and compressed air are built into the system that can be positioned on site and can be working within 36 hours and only requires diesel fuel to begin operations. TRADS 40 the ideal system for disposing of stockpiled SAA at an affordable cost.

EOD Solutions Ltd has recently had the pleasure of working for the UK Ministry of Defence in Camp Bastion, Afghanistan, where the TRADS proved itself in the most arduous conditions over a two-year period. During that time the system destroyed all types of SAA up to and including 14.5 mm ammunition. The system destroys all SAA and their secondary effect components with the exception of high explosive rounds.

EOD Solutions Ltd has recently manufactured the TRADS 20 and 40 for a client to operate in Afghanistan, where the TRADS has proved itself in the most arduous conditions over a two-year period, during which time the system destroyed all types of SAA up to and including 14.5 mm ammunition.

None of the systems require infrastructure, as electrical power and compressed air are built into the system to enable it to be positioned on site and working within 36 hours and only requires diesel fuel to begin operations.

EOD Solutions Ltd is a versatile company who can undertake all the clients needs and requests to safely destroy and manage stockpiled ammunition and clear areas where ammunition contamination is an issue. For more information please contact EOD Solutions Ltd.



EOD Solutions Ltd

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Email: **info@eodsonline.com**

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AT DSEI PELI-HARDIGG SHOWCASES RUGGED CUSTOMISED PROTECTION FOR MILITARY EQUIPMENT

Peli-Hardigg, the world's largest manufacturer of Military and Aerospace approved reusable plastic cases, will present at DSEI (UK Pavilion - Stand S4-240) its Engineered Cases which can be customised and personalised according to each customer's needs while offering the best protection possible to practically any type of equipment, even the most fragile ones. With Peli-Hardigg Engineered Cases, Mission Critical operations are a success.



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With more than 500 cases sizes and bespoke options, Peli-Hardigg designs, develops, tests and manufactures reusable cases and containers for storage or expeditions capable to withstand the most extreme conditions on Earth. The cases provide the highest protection to any piece or tool, from a small electronic equipment or fragile device to complete Typhoon tail container. Peli-Hardigg cases are lightweight, watertight, heat- and impact- resistant and virtually indestructible.



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PELI-HARDIGG V-SERIES RACK MOUNT CASES

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The V-Series Rack Cases include the best features of Peli's configurable rack cases in a pre-configured solution for quick **plug and play** use. Rack equipment is becoming lighter in weight which requires an economical and rapid method of attachment. Peli-Hardigg™ V-Series Cases are built utilizing a full-boxed 19" (482 mm) steel rack with an industry-standard square hole pattern, so hanging electronics with tab mounts is a snap. These cases include clip nuts - just attach the clip nut onto a square hole and you've got a secure, threaded mount. The V-Series are available in two different models: the Classic-V and the Super-V, both models are REACH and RoHs compliant.



The **Peli-Hardigg Classic-V** case comes in black and is available in 3U, 4U, 5U, 7U and 9U with a 83,8 cm (33") rack depth. It includes one 6,4 cm and one 13,3 cm lid, four removable heavy-duty bottom casters, anti-reflective black hardware, including black stainless steel handles, lid hangers for storing the lids while in use, coupling catches for secure stacking, and a sealed gasket and PRV to keep the container airtight / watertight and eliminate over-pressurization.

The **Peli-Hardigg Super-V** case is available in 3U, 4U, 5U, 7U, 9U, 11U and 14U with a 61 cm (24") rack depth. It includes one 5,6 cm and one 13,2 cm lid, moulded in-rear edge casters with handles on the 5,58 cm lid for ease of movement, comfort grip plastic handles, lid hangers for storing the lids while in use, anti-reflective black hardware, coupling catches, and a sealed gasket and PRV to keep the container airtight / watertight and eliminate over-pressurization.

PELI-HARDIGG MIN MAC RACK

compact mobility and rugged protection

The Min Mac Rack answers the need of making the most of limited space, while providing protection. These extremely resistant solutions offer superior mobility for rack mountable equipment and are designed to meet military standard requirements. Their high-strength square holed steel rack frame provides a range of mounting options for fragile equipment, military mission planning tools, mobile operations, ground controllers, and others.

The lightweight, compact design of the double-ended cases boast industry leading shock performance. Its angled precision-engineered elastomeric shock mounts are fine-tuned to match the weight and fragility of the equipment, ensuring maximum shock and vibration isolation. Manufactured entirely in Europe, it's designed to meet the requirements of NATO and European military standards.



For more information visit www.Peli.com

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Five British women are aiming to become the first all-female team to ski coast-to-coast across Antarctica in November 2017. exicemaiden.com

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www.qioptiq.com

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Excelitas Qioptiq supports the British Army in more ways than one.

From frontline equipment to Antarctic expeditions – Find out more at DSEI.

Excelitas' Qioptiq is recognised as a leading supplier to many of the defence and aerospace sector's leading companies and the world's militaries, with a product range that includes some of the most advanced optical technologies ranging from Night Vision Sights - to Head Up Display Optical modules - through to Space Components, all of which will be on display at DSEI London, in September.

Earlier this year UK Minister Harriett Baldwin made the announcement that an £82 million contract had been awarded to Qioptiq, an Excelitas technologies company. The award will see Qioptiq in St Asaph, North Wales provide support for surveillance and targeting equipment to the UK Armed Forces over the next six years. This will ensure vital equipment is available to UK personnel around the globe.

The contract covers equipment used right across the UK Armed Forces delivering capability to all three front line commands. Chief Executive Officer of the MOD's Defence Equipment and Support organisation, Tony Douglas said: "Crucially, the STAS contract, will deliver improved support to Her Majesty's Armed Forces."

But it's not just about support of equipment, we also look to support our service men and women. Qioptiq is a Gold member of Team Army. Sport is critical to the welfare and morale of our forces, yet taking part in sport is often expensive and in some cases, beyond the means of our personnel. Team Army helps to make sport more accessible by reducing the cost of participation as well as increasing the opportunity for our injured troops to take part in competitive sport. Our association with Team Army gives us the opportunity to support such events as Army golf, Sailing, skiing etc as well as other activities



such as the Ice Maiden expedition.

Ice Maiden - Five British women (all serving in the British Army or Army Reserve) are aiming to become the first all-female team to ski coast-to-coast across Antarctica in November 2017. No team of women, from any nation, has completed this formidable challenge. It is the ultimate opportunity to show that women have the mental strength and physical endurance to operate in the most hostile environment on earth.

The Ice Maiden team will cover 1,700km using muscle-power alone, pulling sledges and battling temperatures of -50°C and wind speeds of over 60mph during their three-month journey. Unsupported, and with only two resupply points along the route, they will carry all the supplies and equipment needed to survive for up to 600km at a time.

The Aims

- **To inspire a new era of female expeditionary spirit, encouraging women and girls of all ages to take up a challenge, get active and get outdoors.**
- **To promote an active lifestyle, female teamwork and leadership to companies, schools and youth groups throughout the UK.**
- **To provide winter survival skills and qualifications to a number of women throughout the training process, inspiring them to lead their own expeditions in future.**
- **To collect medical data that shows how the female body copes with extreme endurance in polar environments.**

You can find out more about Antarctica Ice Maiden here - <http://exicemaiden.com/>

Excelitas' Qioptiq is a world leader in the development and supply of image intensified, thermal and fused sighting and surveillance systems, with over 100,000 sights supplied to over 56 countries. We are proud of what we do and honoured to support Team Army and the extraordinary Ice Maiden endeavour.

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DSEI 2017 hall S6 booth 380

An army marches on its stomach

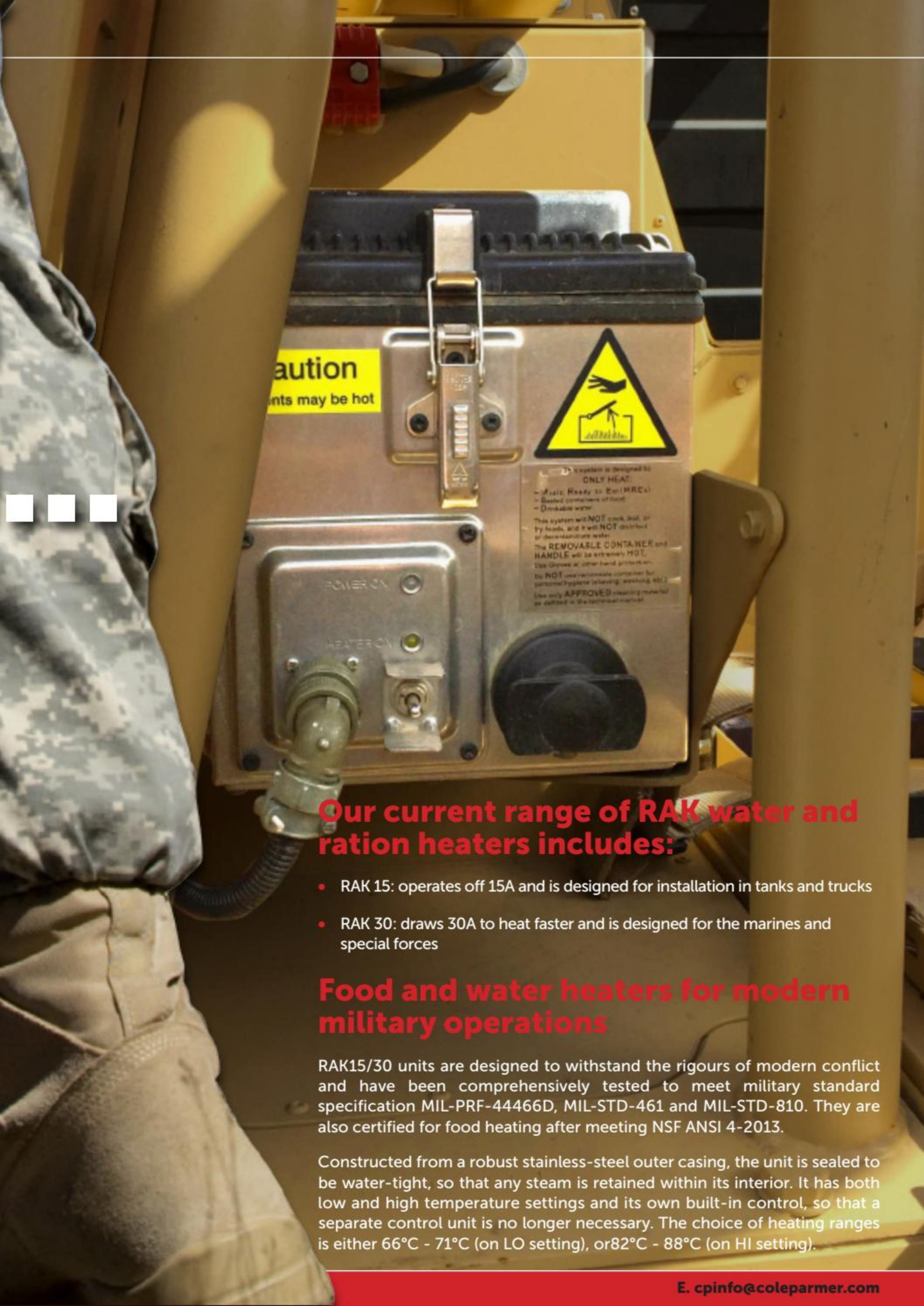


Electrothermal

Electrothermal is a UK-based company that manufactures and designs water and ration heaters for military vehicles. Our heaters are designed for operations on the move and can fit into the cramped quarters of a tank, or other military vehicles, to provide necessary sustenance to the soldiers on-board.

Key features:

- Heats 2 pints water and 5MREs in the vehicle while on the move
- Contents remains hot for up to 6 hours after the unit has been switched off
- "Cool to touch" outer casing
- Designed-in "Boil Dry" condition and fail safe mechanisms
- Connects to vehicles auxiliary power supply, 24 volts DC
- Heating range 66 to 71°C (on LO setting)
- Heating range 82 to 88°C (on HI setting)
- Ramp rate of 56°C in one hour (max) from ambient temperature of 21°C



Our current range of RAK water and ration heaters includes:

- RAK 15: operates off 15A and is designed for installation in tanks and trucks
- RAK 30: draws 30A to heat faster and is designed for the marines and special forces

Food and water heaters for modern military operations

RAK15/30 units are designed to withstand the rigours of modern conflict and have been comprehensively tested to meet military standard specification MIL-PRF-44466D, MIL-STD-461 and MIL-STD-810. They are also certified for food heating after meeting NSF ANSI 4-2013.

Constructed from a robust stainless-steel outer casing, the unit is sealed to be water-tight, so that any steam is retained within its interior. It has both low and high temperature settings and its own built-in control, so that a separate control unit is no longer necessary. The choice of heating ranges is either 66°C - 71°C (on LO setting), or 82°C - 88°C (on HI setting).

DESIGNED TO DEFEND

Strong durable rapid construct aircraft hangars

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Span sizes

Multiple hangar spans: 11.1m (36ft), 20.4m (67ft) and 25m (82ft)

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Complete EFASS range of military buildings packs into 20ft ISO shipping containers.

Construction

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Strength

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Usage

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Fabric

Double skin insulated PVC fabric cladding is fire retardant and can be easily repaired.



Handling

Components can be unpacked, constructed, dismantled and repacked by military personnel



Access

State-of-the-art hangar doors available including Heli-Door, Trident and Roller Shutter options



Framework

The EFASS hangar aluminium framework has been designed to maximise strength, minimise weight and still be robust enough to withstand multiple construction procedures in challenging environments.



Military Buildings

excellence in engineering

Technical Working Environment How a Rubb deployable aircraft hangar had Unmanned Warrior



The MoD's Operational Infrastructure Programme (OIP) Team manages and supports Technical Working Environment (TWE) to ensure temporary hangars can be deployed and built at short notice in inhospitable environments.

TWE enables the Ministry of Defence (MOD) to deploy temporary hangars in support of operations, exercises or trials at short notice without the manpower and cost requirements of a permanent 'wet build' (i.e. bricks and mortar building) solution.

The current capability means a huge hangar can be erected on average between four and seven days (wind dependent) and can accommodate all in-service fast jets, rotary wing aircraft and Unmanned Aerial Vehicles (UAVs).

The team played a key role in supporting the Unmanned Warrior event at Benbecular, Scotland, by installing a 20m Rubb EFASS deployable aircraft hangar (RES) at the site. This type of beautiful but barren environment is exactly the type of challenge that the TWE capability is designed to overcome. Breath-taking views, calm waters and glorious sunshine can be replaced at a moment's notice by driving rain, gale force wind and almost zero visibility. While the temperature outside can be as high as 50°C or as low as -20°C, those inside are kept at a comfortable internal ambient temperature of 20°C.



g Environments: able military shelter rior covered

Jo Llewellyn, head of the Infrastructure team in OIP explained: *"Its primary purpose is to provide an environmentally controlled, safe working space for aircraft, enabling personnel to carry out missions that are considerably more challenging outside of permanent infrastructure. One key item within the TWE capability suite is the 20 metre span Rapid Environmental Shelter (20m RES) – a versatile shelter designed for use in the most austere and varied environments from freezing conditions to the searing heat of the desert."*

"A recent study by the RAF at Conningsby concluded that the use of a RES increased aircraft serviceability by 20 per cent when compared with aircraft stored outside in the elements. This delivers a marked increase in the number of sorties that can subsequently be staged while on operations."

She added: *"Navy Command identified quickly that Unmanned Warrior (a maritime autonomous systems demonstration of the coast of Scotland) would need a TWE capability due to the rugged and hostile environment on the island of Benbecula. The purpose of Unmanned Warrior was to demonstrate the latest unmanned system technologies, including air, surface and sub-surface vehicles and sensors."*

The team set about making arrangements to ensure a Rubb 20m

EFASS (RES) could be deployed and erected in time for the hugely successful event. Jo commented: *"Over a period of three months 523 Specialist Team Royal Engineers (STRE), part of 20 Works Group Air Support, conducted recces and drew up the logistic plans. The project team from OIP along with a team from 5001 Sqn, who are the only Suitably Qualified and Experienced Person (SQEP) constructors and maintainers for TWE, arrived and the erection of the shelter progressed."*

"By attending the build, the Infrastructure team were able to discuss any issues face to face with the user, capture and address areas of continuous improvement, gain an understanding of the on-going challenges that 5001Sqn face with the products and discuss the most up to date construction methods used in

other inhospitable locations where TWE is deployed around the globe. This particular mission ably demonstrated the tri-service nature of the capability and the cooperation between the different organisations involved."

TWE, a Tri Service capability, is sponsored by the Army, while the tasking authority is Permanent Joint Headquarters (PJHQ). Initial site surveys for TWE projects are carried out by 20 Works Group Royal Engineers and RAF 5001 Squadron. Finally, the asset is constructed and maintained by 5001 Sqn.



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Explotrain Introduces Explodrone Training and Simulation System for SUAV Threat

Drone Based IED Simulation System for Military and Law Enforcement Training

While military, law enforcement, and security professionals are working diligently on defensive technologies to counteract the emerging threat of Small Unmanned Aerial Vehicles (SUAVs), one small business in Florida has adapted their existing technologies to create the first simulation system to provide effective training products. Explotrain has led the Battlefield Effects and IED/EOD Simulation and training industries for several years. Now, they have turned their attention skyward and created a realistic and effective simulation system to replicate this rapidly developing threat.



Explotrain's president, C. Dean Preston said, "Since 1998, Explotrain has provided our military and law enforcement personnel with realistic training and simulation products versatile enough to allow them to reproduce the enemy's threats and tactics as they emerge. That versatility and realism are now allowing us to

replicate the emerging threat of SUAVs, or drones as they're more commonly known. The rapidly evolving tactics and technologies of the enemy require a training system that can respond rapidly so that our troops are able to train against the new threats they will be facing today". Since the development of their training system and Model X-01™ Explosive Blast Simulator in 1999, Explotrain has invented and produced much of the technology used to train troops in the areas of Explosive Ordnance Disposal and IED Defeat on both land and sea. The new Explodrone™ system now will allow training with simulated threats from the air as well. The Explodrone System

will be available for purchase in the fall through various government contracts or by contacting Explotrain directly.

About Explotrain LLC: Explotrain LLC is a small business based in Fort Walton Beach, FL. Explotrain has produced state of the art explosive and IED simulation since their founding in 1998. Their patented technologies are the choice of military and law enforcement training installations worldwide.



PARAMOUNT PANELS

Instrument Lighting & Control Panels



Paramount panels will once again be participating at this year's Defence & Security Equipment International, **DSEI 2017**.

We will be exhibiting from Tuesday 12th through to Friday 15th September inclusive at the ExCel London, and we would welcome you to visit us at our booth located in the South hall, at **S2-304**.

Paramount Panels will be showing an extensive range of products including NVIS LED control panels, Instrument and internal aircraft/vehicle lighting along with transilluminated control knobs.

At this year's event we will be launching our latest custom designed PWM Solid state dimmers, which is designed primarily for the dimming control of lighting sources within an aircraft cockpit, which is fully qualified to D0-160. Other benefits of our dimmer include the ability to control mixed lighting technology (LED & Incandescent) from one device, which is often the case in aircraft NVG lighting upgrades.

When visiting us at our stand, you will have the opportunity to discuss and view all of our products, and please do not hesitate in contacting us prior to arrange a specific meeting at your convenience.

www.paramount-panels.co.uk

www.paramountpanels.com

Paramount Panels (UK)

Mollison House | Aden Road | Enfield | Middlesex | EN3 7SY | United Kingdom

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www.paramount-panels.co.uk

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PARAMOUNT PANELS



System



System

AEI Systems

AEI Systems

AEI Systems will be exhibiting a range of their new and existing products on stand S5-380 at DSEI 2017

www.aei-systems.com



System

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tems

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WEAPONS

- AEI-HS804
- ALEXIS
- INSPEKTA
- ADEN

WEAPON MOUNTS

- AEI-HS804 — Lightweight
- M2 HMG — Legacy
- GPMG — G3 Cone & Bearing variants
- ANF1

WEAPON SPARES

- Rifled barrels — 12.7mm
- Breach blocks — 20mm
- Receiver assemblies — 30mm
- Feed mechanisms — 84mm

WEAPON ACCESSORIES

- EFU GPMG — Air
- Safety Unit GPMG — Air — Land

Copenhagen Sensor Technology A/S selected for Irish MoD LSAS program

Copenhagen Sensor Technology A/S (CST) has been awarded a contract with General Dynamics European Land Systems – Mowag (GDELS-Mowag) to provide Local Situational Awareness System (LSAS) for the Irish Defence Forces Piranha III APC upgrade. This program is set with a delivery plan from 2017 – 2021.

Following negotiations, CST was selected as the preferred supplier by GDELS-Mowag for the LSAS which will

provide local situational awareness for each vehicle consisting of both day & night capacity, IR lamps, multi-functional digital displays, matrix and cable set. Images from all sensors can be shared around the vehicle. The functional display can be customized to suit the user / operator's requirements and multiple images can be viewed on screen to provide maximum information as required.

The structure of the system allows the

operator to plug and play with different sensors and will allow future updates as required.

All mission systems will include CST's Citadel Quattour Cam, which can support both day & night operations, colour and thermal imaging capability to enable the driver and crew members of the vehicle to operate safely and with confidence in all weather conditions. In addition, the mission system will consist of Citadel compact cameras to support a 360-degree surveillance in order to secure, as well as support all crew members during operations.

CST builds upon systems delivered to other customers worldwide, to provide situational awareness systems to the vehicle crew-members with key-words being safety for operators.

"It is with great pleasure for CST to announce this partnership with GDELS-Mowag to supply a complete situational awareness system for the Irish Piranha III upgrade program" says Klaus Aude, Vice President Business Development at CST.



For CBRN protective textiles, trust the leaders in the field

Chemviron Carbon is the world's leading manufacturer of superior 100% activated carbon cloth (ACC) - the vital CBRN protective layer in clothing for defence and security personnel worldwide.

Key advantages and applications of Chemviron Carbon ACC include:

- Lightweight and breathable for very low physiological burden
- Very rapid adsorption of a wide range of CBRN molecules
- Suitable for protective clothing, first responder masks and escape masks
- Used in CBRN filtration and decontamination wipes



CalgonCarbon

ChemvironCarbon

For further information please contact Chemviron Carbon today

T: +44 (0) 191 584 6962 | E: info@chemvironcarbon.com | W: chemvironcarbon.com

Chemviron Carbon Cloth Division, Rainton Bridge Industrial Estate, Houghton-le-Spring, Tyne & Wear DH4 5PP, UK



Flexzorb™



Defence

Flexzorb™ Activated Carbon Cloth for the Defence Sector

Flexzorb™. The flexible, lightweight protective textile.

Flexzorb™ is widely used by many of the world's leading defence vendors, making us the leading provider of activated carbon cloth for defence applications.

Lightweight and breathable, Flexzorb is used in a range of defence applications, including:

- **Personal protective equipment (PPE)**, as a lightweight, protective layer against CBRN agents
- **CBRN filtration media**
- **Decontamination wipes.**

Consisting purely of activated carbon, Flexzorb is lighter and adsorbs more quickly and effectively than other, carbon-loaded materials, which contain less activated carbon.

Customised to your needs

Flexzorb is available in woven and knitted formats, which have different attributes appropriate to specific applications:



- **Flexzorb knitted cloth** is a stretchable fabric and well suited to applications demanding high freedom of movement.



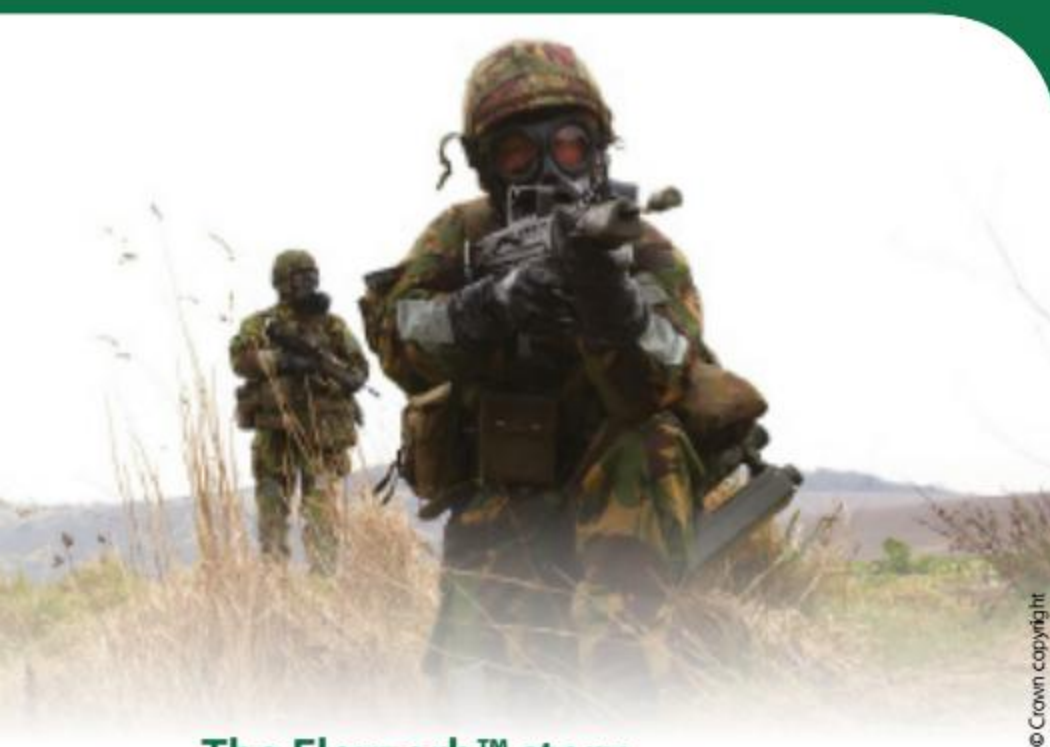
- **Flexzorb woven cloth** offers higher air permeability, especially suitable for warmer climates.

Flexzorb can also be:

- impregnated with various chemistries for added sensitivity to adsorbing inorganic molecules
- treated to repel liquid agent, water and oil, and to prevent sweat affecting performance
- laminated to custom backing textiles for specific applications
- produced in pre-cut shapes and different widths.

Flexzorb acts as an extremely effective high-purity filter, separation method, an antimicrobial, or a protective layer. Key to its very high adsorption* capacity and rapid adsorption speed are:

- **Electrostatic forces** which attract molecules from various gases, liquids and other environments such as clinical wounds, adsorbing them within a network of micropores..
- **A highly microporous structure.** This means that Flexzorb has a very large surface area. To put this in perspective, just 1g of Flexzorb has a surface area of around half the size of a soccer pitch.



© Crown copyright

The Flexzorb™ story

Flexzorb™ has its origins in the first activated carbon cloth (ACC), developed in the 1970s. It was initially used - and still is to this day - as a protective layer in military clothing and masks against chemical, biological, radioactive and nuclear (CBRN) agents.

Today, Flexzorb is the world's leading superior 100% activated carbon cloth, used globally in a wide range of applications by defence, medical and industrial sectors. These range from antimicrobial, anti-odour wound dressings to purification filters, among many others.

*Adsorption is the process of attracting molecules on to a surface, rather than into something. It is analogous to iron filings being attracted on to a magnet.



Flexzorb™ Defence Applications

CBRN protection. Frontline effectiveness with comfort.

Deployed by defence and security forces worldwide, Flexzorb™ provides a lightweight, protective layer against CBRN agents in PPE, including combat suits, first responder suits and escape masks. This is how Flexzorb works:

- **CBRN agents trapped** by electrostatic forces that draw and trap CBRN gas, vapour and liquid molecules on its surface
- **Air permeability** enhances effectiveness and comfort
- **Superior comfort** thanks to low burden, lightweight Flexzorb 100% activated carbon cloth layer which keeps overall garment weight low.

We produce and supply Flexzorb in a variety of sizes and specifications. Flexzorb can be treated for added protection against liquid agent and to prevent human sweat interfering with its performance. Also, laminated composites are available to meet specific application needs.



Contact us

To find out more about Flexzorb™ or to discuss your specific defence applications, please contact us and we will be happy to help.

Tel: +44 (0) 191 584 6962 Fax: +44 (0) 191 584 6793
Email: info@calgoncarbon.com

Chemviron Cloth Division, Rainton Bridge Industrial Estate,
Houghton-le-Spring, Tyne & Wear DH4 5PP, UK

Chemviron is the European operation of  Calgon Carbon

Other CBRN defence applications

As well as PPE, Flexzorb™ can be used in other CBRN defence applications:

- **CBRN filtration media**, offering protection against CBRN agents at higher airflow rates than other media
- **CBRN decontamination wipes**, mitts and pads, for scratch-free cleaning - ideal for glass and sensitive equipment. They also prevent spreading or off-gassing of harmful agents, for easier disposal.

Other applications

Further uses of Flexzorb™ in military theatres of operation include:

- **Antimicrobial wound dressings for military use**, which are easy to apply, conformable to the body's contours, control odour and promote accelerated healing
- **Missile decoy media**, using the thermal properties of activated carbon
- **Phosphine gas adsorption media**, for capturing fugitive emissions from munitions.

About Chemviron Cloth Division

Flexzorb™ is produced in the UK by Chemviron Cloth Division, the world's leading manufacturer of 100% activated carbon cloth. Chemviron is the European operation of Calgon Carbon, the world leader in the production and development of activated carbon in granular and cloth forms. At our Innovation Hub, we continually research and develop new attributes of Flexzorb for ever-widening applications.



www.chemvironcarbon.com



Take the long road back with a Frontier Long Range Fuel Tank.



***Now available
for the TOYOTA
LC200 DIESEL***

Features and benefits

- Carry an extra 140 liters of diesel!
- Replaces OEM-sub tank
- Robust, one-piece construction with 8 mm walls
- Easy installation, strap mounting kit included
- Convertible into a TSS ProtecTank®

For further information on this product, visit

www.tssh.com



TSS International official distributor for • Rodgard Runflat Systems • B&G Electronics • TSS Heavy-Duty Wheels • TSS Protectank
• Rodgard Securebands • MOV'IT Security Brake Systems • Hutchinson Runflat Systems • Téléflow CTIS



Go that extra mile and more... with the 185 litre Frontier fuel tank.

**4 times
the size
of the standard
sub-tank!**

Fuel can be a critical asset to your mission. The Frontier Fuel tank prevents your Diesel from running out before your trip is over.



Hostile environments are never a good place to stop for refuelling. Now you can expand your armoured Toyota LC200's diesel by 140 liters! The 185 liter range extender replaces the 45 liter standard sub-tank. The specifically blended Crosslink Polymer construction is up to 8mm thick and made from one piece, making it extremely durable and impact resistant. The fuel tank is supplied with quality hardware, fixtures and fittings allowing for an easy installation.

Filler Neck: Each Frontier tank is fitted with a fully machined filler neck milled from aluminium billet, allowing for fast and easy fuel delivery.

Pump Plate: Each tank uses a vehicle specific sender plate, which provides a positive sealing surface to the tank. CNC machined from 10 mm thick steel, the plate is zinc coated for resistance against corrosion.

Strap Mounting Kit: Providing a unique mounting solution for a complex installation, the strap mounting system is relatively easy to install. The rubber coated steel mounting straps have been designed to meet the extra load requirements and attach to the vehicle chassis. These straps keep the tank secure, provide a non-rigid mounting system which accommodates slight movement.

Avoid the danger of fire and explosion with a TSS ProtecTank conversion. Convert your existing fuel tank into a TSS ProtecTank®, **protected against fire, explosion and leakage.** For more information, please go to www.protectank.com



Note: Spare wheel needs to be moved when fitting the Frontier fuel tank. TSS can supply an optional bracket for the rear of the vehicle (not compatible with 'barn-door' LC200's).



TSS International BV

Zuideinde 30-34, 2991 LK Barendrecht. P.O. Box 2013, 2990 DA Barendrecht. The Netherlands
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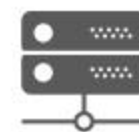
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By understanding the unique challenges facing our clients, Barrett provides a complete communications solution including tailored operator training and technical support.

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50 years focus on the safety

Polyamp has two main sector of operations:

- Industrial grade DC/DC Converters and Power supplies
- Signature Management Systems, Systems Division

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191 29 SOLLENTUNA
Tel: +46 - (8) 594 693 00
Fax: +46 - (8) 594 693 05
info@polyamp.se
www.polyamp.com

The Systems division of Polyamp specializes in the design, manufacture and supply of Underwater Electromagnetic Signature Management and Control Systems for Worldwide application within the International Naval Industry / International Navy authorities.

The type of systems supplied are Advanced Degaussing systems for surface and submarine naval vessels. Electromagnetic Mine Sweep supply, Underwater Electric Potential (UEP/ELFE) sensors and electromagnetic design and measurement systems.

The SWECADE software can predict and design coil systems, dimension Degaussing systems, control fixed and movable ranges, support signature analyse and document the fleet vessels signature history.

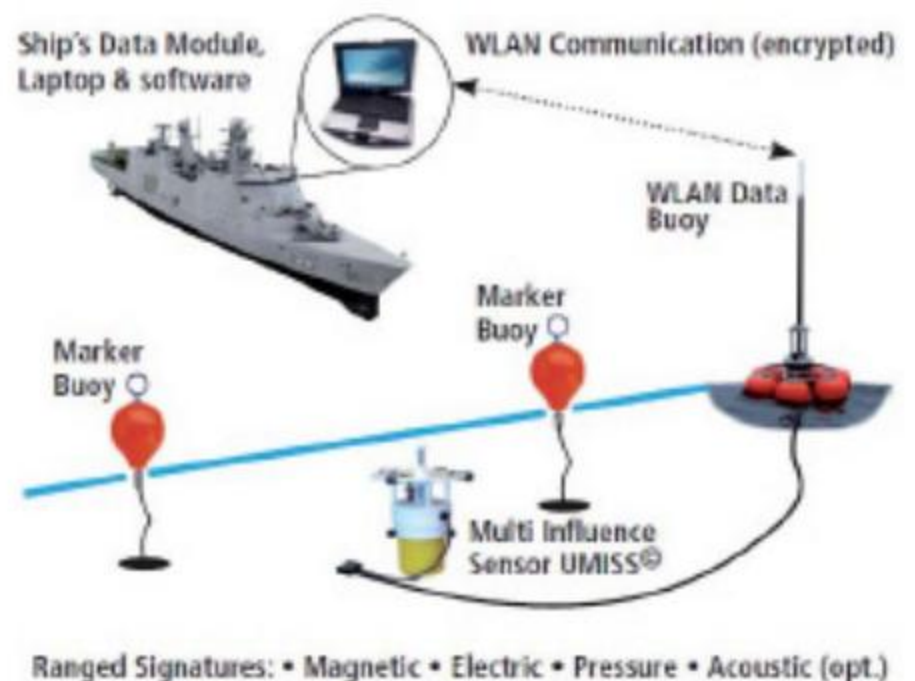


Illustration of an UEP signature of a vessel

Underwater Electric Potentials (UEP) is produced by corrosion currents in the ship or submarine hull and also from propeller or other dissimilar metallic materials in contact with the salt/sea water. A ship's electric signature is behaving in a similar way as the magnetic signature. Therefore this can also be used as an input or trigger signal in an influence mine. The hull of the ship and the propulsion also produces a modulation of the corrosion currents called Extra Low Frequency Electric field (ELFE) that can be used for positioning, target evaluating or for reconnaissance.

The Polyamp Self Range System POLYSERA® is a Multi Influence Sensor system that will allow Naval ships to perform autonomous control of their own underwater signatures. Knowledge of level and range for the signatures are crucial for mission planning and tactical behaviour of Naval units.

The POLYSERA® system consists of one or more standard Polyamp UMISS® Multi Influence Sensor System connected to a sea cable which communicates the underwater data to a Data communication buoy at the surface. The Data buoy contains a small computer, batteries and a WLAN modem with antenna, which sends the measured and encrypted signatures data to an on-board Ships Data Module and a laptop computer where all the underwater signature data can be seen, stored and analysed. Due to its small size and weight the POLYSERA® is a truly portable system.



www.polyamp.com

Industrial grade DC/DC Converters and Power supplies

Polyamp has designed, manufactured and marketed industrial grade switched mode DC/DC converters since 1970 with power ratings from 30 to 2000 W. There are more than 350 standard types in the Company's current product range and some of them are kept in stock for higher service degree.

Polyamp's DC/DC converters are used in many applications where the customers demand high reliability and accuracy performance throughout their whole life. Particularly when operating in very harsh electrical/physical environments. All Polyamp units are designed for easy installation and do not need any additional electrical or EMC protection when integrated into customer applications.

During this time Polyamp has successfully delivered and supported DC/DC converters in a wide range of applications, and in so doing has established a reputation for quality, reliability and on time deliveries.

Polyamp supplies switched mode power supply systems with high reliability and dependable performance in harsh electrical and physical environments. Product range covers:

- DC/DC converters 30 to 2 kW
- Inputs from 10 up to 850 Vd.c.
- Outputs from 5 to 150 Vd.c.
- AC/DC Power Supplies 5 - 6 kW where we also sell Delta Elektronika and Powernet products



Customers include railways, electric vehicles, the armed forces, air traffic control and the process and power industries including nuclear.

Applications include:

- Train and Track Side
- Process Control, safety systems
- Power Plants (including Nuclear 1E class)
- Power / DC Distribution & Telecom
- Forklifts, Electrical Vehicles
- Radio applications
- Industry
- Naval and Military
- Air Traffic Control

Signature Management Systems, Systems Division

The Systems Division of Polyamp AB specializes in the design, manufacture and supply of Signature Management and Control Systems for Worldwide applications within the International Naval Industry.

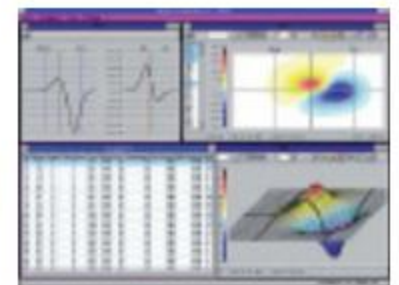
Polyamp supplies Military Systems such as:

- Degaussing Systems.
- Influence Mine Sweep Supply Systems; *MSS2000*.
- Range Software; *SWECADE*.
- UEP/ELFE Measurement Systems
- Exercise Mine Systems; *POEMS*.
- Underwater Multi Influence Sensor Systems; *UMISS*

Customers include Shipyards, Navies, Governments and Prime Contractors from the International Naval Community.



Sample UMISS equipment



Typical SWECADE display

Systems Deliveries and Experience

The Company's experience in Degaussing is considerable with over more than 25 years that covers the design and supply of Digital Degaussing equipments for submarines, steel surface ships and mine counter-measure vessels (MCMVs). All Polyamp AB Degaussing systems are fully digitalized, with multiple magnetometer control, and all are of the Advanced type (ADG) and using the latest type of modern hard/software open oriented. Latest design are of the modern decentralized type.

They include:

- RSwN MCMVs type Landsort and Styrsö class
- RSwN Gotland Class Submarines
- Range Software; *SWECADE*.
- RSwN Corvettes type Stockholm, Göteborg classes & the Visby Class Stealth Corvettes
- Singapore Navy Bedok Class Minehunters & Challenger Class Submarines
- US Navy San Antonio Class Landing Platform Docks
- Royal Danish Navy Absalon Class Flexible Support Ships and Nils Juel class Frigates
- Royal Danish Navy SF MKI MCMV vessels
- US Navy CVN 77 Air Craft Carrier

Other Systems delivered are:

- Multi Influence Sensor Systems for France; DCNS & DGA
- Several UEP/ELFE sensor systems for RSwN, US, India, Germany and other International Navies



ROG

SOLID OXYGEN

EMERGENCY MEDICAL OXYGEN

WHEN you need it... **WHERE** you need it

The ROG™ is manufactured by Molecular Products; a global leader in chemical based technologies for the purification of air to preserve life and protect the environment.

The ROG™ is an innovative medical oxygen generator designed for medevac via air, sea and ground-based medical support teams.



- Delivers medical grade O2
- Unpressurised and non-explosive
- Portable and lightweight
- Resistant to extremes of temperature
- No maintenance, electricity, mixing or filling
- Live fire, shock and drop tested
- Rugged in design to withstand demanding operational rescue environments
- Cool Touch technology

Rugged Oxygen Generator: Minutes To Save A Life

The ROG™ is a rugged oxygen generator that gives immediate access to a life saving oxygen supply. Designed for pre-hospital casualty care in demanding environments, the ROG™ is an innovative development in medical technology that will help increase survivability of defence and security forces.

ROG™ technology has succeeded the demands of extreme environment testing including live fire, drop, shock and vibration.

In austere environments, the ROG™ enables patients to be oxygenated at the point of injury via a safe, reliable and non-explosive source. Small and light enough to be carried in a medical bag, the ROG™ does not require any maintenance, electricity, mixing or filling. Rugged in design, the ROG™ is portable, strong, durable and able to withstand robust use in rough terrain or confined spaces.

Unlike compressed medical oxygen cylinders, the ROG™ can be exposed to extremes of temperatures, operated in any orientation and has an extensive shelf life.

Unique to the ROG™ is its Cool Touch thermal management system. Unlike any other product of its kind, the technology inside the ROG™ keeps the heat inside, ensuring that the unit stays at a safe temperature during use.



TECHNICAL SPECIFICATION

Duration	15 minutes
Flow rate	6 litres per min (average)
Weight	2.0kg (4.4lb)
Oxygen purity	99.9% (USP)
Dimensions	270mm (h) x 115mm (w)
Heat insulation	Cool Touch technology
Usage	Single use
Certification	FDA 510k cleared



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New product update: TSS BPX Runflat

Armour Mobility Specialist TSS International BV has been actively further developing its products for heavily armoured security vehicles.

In February, it successfully road-tested its newest generation Heavy Duty Runflat Systems for extra heavy loads, against FINABEL standards (100km with flat tyre) under a 1400kgs wheel load (see picture). A 50km/h runflat test with 1800kgs payload was also satisfactorily completed, under the supervision and guidance of ATP in Papenburg, Germany.

All 18" TSS Heavy Duty Wheel rims - available in two designs with 1.600kg and 2.000kg payload (TüV-certified) - for SUVs and 4x4s will be delivered with this new BPX Runflat, which replaces the highly successful APX Runflat, which has been in service since 2010.

Of course, TSS will be able to deliver this runflat in its TSS Heavy Duty

Wheel Assemblies: ready-to-use, balanced wheels for commercial armoured vehicles such as the Toyota LC200, Nissan Patrol, Chevrolet Suburban, Mercedes G-Wagen and many more.

Besides this development, TSS also has a range extender diesel tank for Toyota LC200's, allowing the vehicle to carry an additional 145 liters of fuel.

This range extender can also be converted to a TSS ProtecTank® by adding a self-sealing & flame-retardant coating.

The range extender further completes TSS' product range, adding to a complete package of high-quality mobility products for armoured vehicles: runflat inserts, heavy duty wheels and -brake systems, protected fuel tanks, vehicle intercoms and red/blue & yellow/white emergency lights. More information available at www.TSSH.com or via sales@tssh.com



RF over Fiber has an Important Role in Disaster Recovery

Disasters can strike without warning, and for a broadcast or satellite earth station hit by a fire, flood, hurricane or terrorist attack for example, the resulting loss of satellite signals can have major operational and financial implications. Planning for continuity of operation using off-site backup is therefore highly recommended.

The necessary redundancy can be provided by RF over fiber links from

ViaLite, which make it possible to immediately switch over all communications to another back-up location, locally or even hundreds of kilometers away. Satellite communications can therefore operate completely independently of the local infrastructure.

"A typical earth station will have redundant power supplies and other redundant equipment. But what

happens if there is a major disaster at your teleport?"

"Ideally you need redundancy on a completely different site," said Gary Wade, ViaLite Product Manager.

Business continuity provided by the immediate switchover means that there is no downtime, avoiding the possibility of large follow-up costs or contract penalties that can result from unplanned shutdowns. The long distance links can also be used to uplink data and communications.

As well as satellite earth stations, RF over fiber links can provide back-up for the emergency service comms and the ability to have redundant sites outside of the city for any RF communication system.

ViaLite links are also suitable for use by hospitals, airports etc. to back up their satellite communication systems, and ensure mobile and internet communications continue to operate by having a separate link at a facility away from the disaster zone.



TYRON

Runflat

**STAND
N9-300**



**Tyron R7 - Bolt together wheel
with two-piece rubber runflat**



**Tyron R4 - Double beadlock
wheel and runflat system for
4 x 4 and armoured vehicles.**

**TYRON develops the
super lightweight**

ATR-CARBON



**NEW
for 2017**

The lightest rubber runflat in the world

www.tyron.com

Military Wheeled Tyre Protection

Tyron has developed a range of solutions to keep wheeled vehicles moving safely in the event of a sudden tyre deflation.

Created following extensive consultation with both users and tyre fitters, Tyron's solutions have been extensively tested and proven in the harshest conditions.

The company's two product families are the Tyron All Terrain Rubber Runflat or ATR and the Tyron Multiband. In both cases these have been designed to allow for the changing of tyres without the need for specialist equipment.

Tyron has developed and patented a multipart rubber runflat, suitable for fitting to a wide range of military and security force off road vehicles.

Made out of rubber, the Tyron ATR absorbs the shocks from bumps more effectively than a hard composite solution and reduces the damage to the wheel and the tyre, so that both have the potential of being re-used when repairs have been carried out.

Using rubber also gives the passengers inside the vehicle a more comfortable ride in the case of a tyre burst, which enables them to be in better shape to carry out their task.

The patented multi part design allows the fitter to change a tyre at the side of the road without special tools.

Tyron's rubber runflats are designed with beadlock, which prevents the wheel slipping inside the tyre, this allows the vehicle to continue on its mission and get back to base. The use of rubber is far more effective than other materials.



Wheel & Protection

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VISIT US AT DSEI

Stand No **N9-300**

Weight Reducing Runflat Introduced

Tyron has introduced a lightweight carbon fibre rubber runflat, the Tyron Carbon-ATR, which achieves up to 50% weight reduction.

Tyron runflats have a patented steel core to give it strength and a frame to maximise the performance of the rubber, the Carbon-ATR replaces this with a carbon fibre core, which reduces the weight while maintaining its strength.

"Reducing the weight on an armoured vehicle is the goal of all vehicle designer's as lower weight means increased mobility and better fuel economy" said Richard Glazebrook, Chief Executive of Tyron Runflat.

The new Carbon-ATR are available for both the 1400R20 and 1600R20 tyres where the greatest weight saving can be achieved.



TYRON

Flat Tyre Protection

Timoney, a name you may have heard of but probably not one you know well, so what does it do?

For 50 years, 2017 is the company's 50th Birthday, it has been supplying automotive systems for harsh off-road environments from a country not often associated with AFVs, mining and construction trucks – Ireland.

In the early days, the Timoney brothers, founders of the company, supplied high output diesel engines but the opportunity arose in the early 1970s, just as the first oil crisis hit, to provide the Irish Defence Forces with a 4x4 AFV. Initially there was a supplier for the drivelines but when it came to actually providing they pulled out forcing the company to design its own driveline and independent double wishbone suspension system. This has gone on to form the core of the company's offering for a wide range of 4x4, 6x6 and 8x8 AFVs, the US Air Force's fire trucks, and Terex ore carrying vehicle.

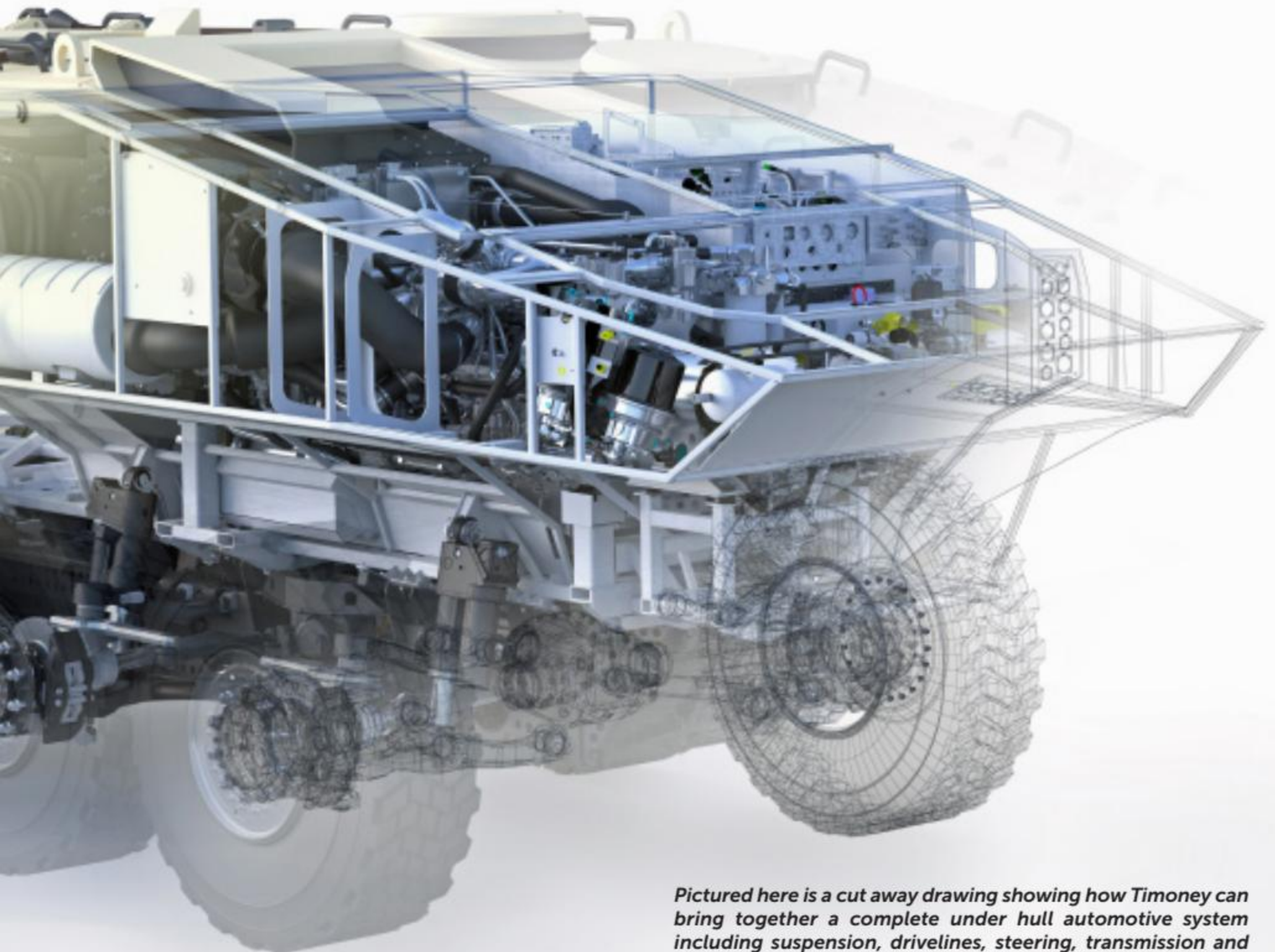
Today Timoney is a different, though just as agile, company. It is focused on creating below the hull automotive technology for customers who don't have the engineering skills to develop their own drivelines but do want to develop their manufacturing skills and industrial capability. Core to its operating philosophy is creating technology for technology transfer.

Its work includes modular drivelines for 4x4, 6x6 and 8x8 vehicles, including suspension systems, axles, transfer cases, steering systems and chassis enabling soldiers to emerge from the vehicle fit to perform regardless of terrain or speeds experienced. If a customer wants it to, Timoney can design the whole vehicle from the ground up bringing in subject matter experts for areas such as armour and electronic systems architecture.





The Yugoimport-SDPR Milosh troop carrying or liaison 4x4 has high mobility levels as well as good levels of protection. It uses Timoney axle systems which have been manufactured by their partners Texelis. It is a classic example of the company's operating system where it develops technology and then transfers this to its manufacturing partners to meet customers' requirements.



Pictured here is a cut away drawing showing how Timoney can bring together a complete under hull automotive system including suspension, drivelines, steering, transmission and amphibious drive solution. During a recent project, it build a "wire frame" prototype in less than six months.

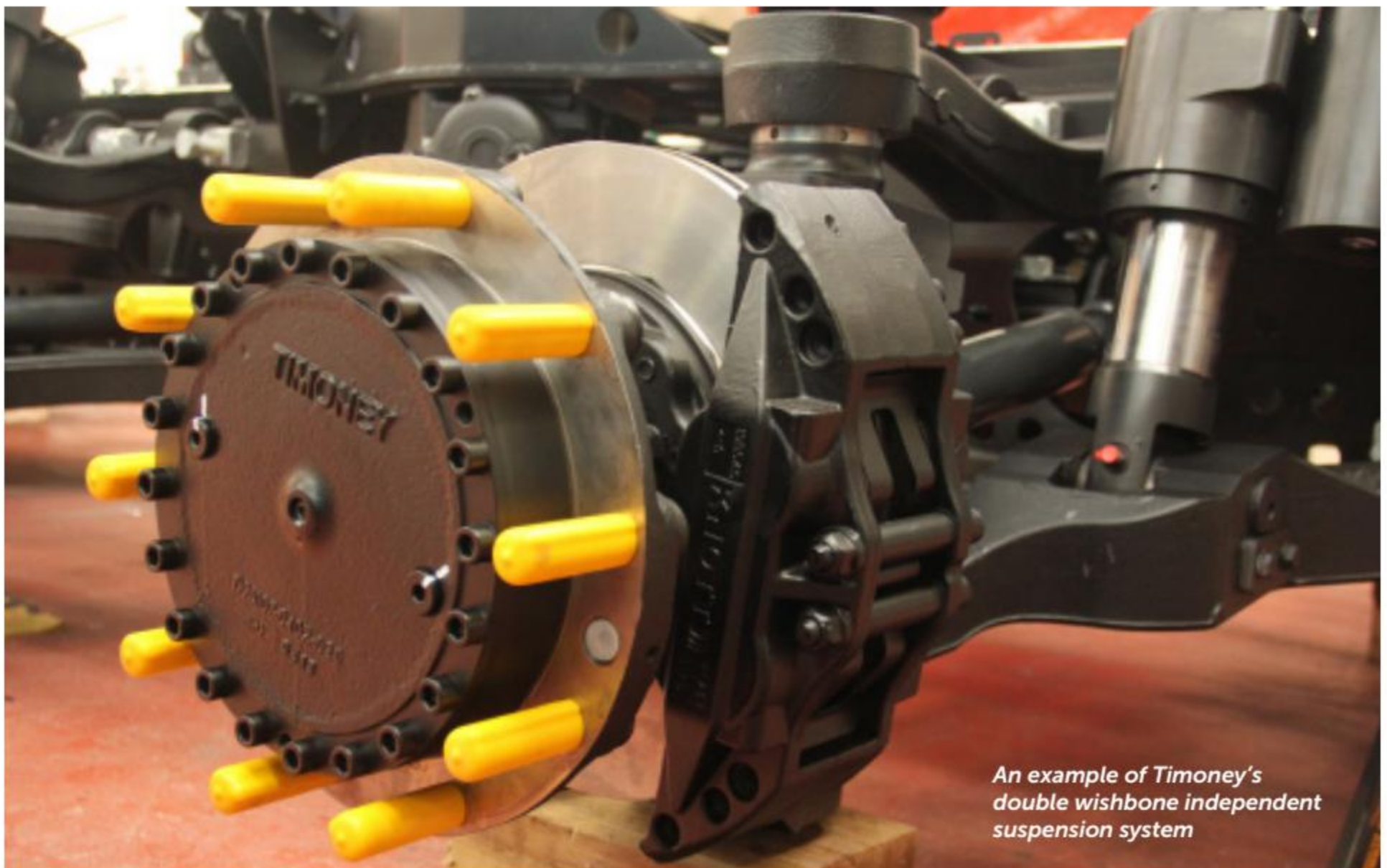


During the design and development phase of any project Timoney puts its systems through an extensive testing process. Here a double wishbone independent suspension system is tested on the company's test rig.

One of the attributes that Timoney prides itself on is being able to respond to customer requirements quickly. It does this through a novel process of bringing not only the customer but the complete supply chain and partners in one room and then working together to solve the problem and commit to the programme. This process, which requires partners in whom Timoney has complete trust, was applied recently to the design and prototyping of a complete AFV under hull automotive system which was taken from concept to proven prototype in less than six months.

This trust also works on the manufacturing of the company's driveline solutions where it works with strategic partners such as Texelis in France, who produce the company's axles under licence. Timoney designs the axle system and then works with the partners to manufacture and supply to those customers who want to buy the axles which have been designed into their vehicle. Over the years Timoney has been involved in a wide number of projects and the output of these can be seen in over 30 countries across the globe from Ireland to Australia to Korea, from the USA to South Africa and many places in between.

Though the market in major defence alliance areas such as NATO may be focused on a few prime programmes elsewhere many countries are looking to develop their own capabilities and it is these where the Timoney mantra has real applicability.



An example of Timoney's double wishbone independent suspension system

Celebrating 50 Years of Automotive Engineering Excellence



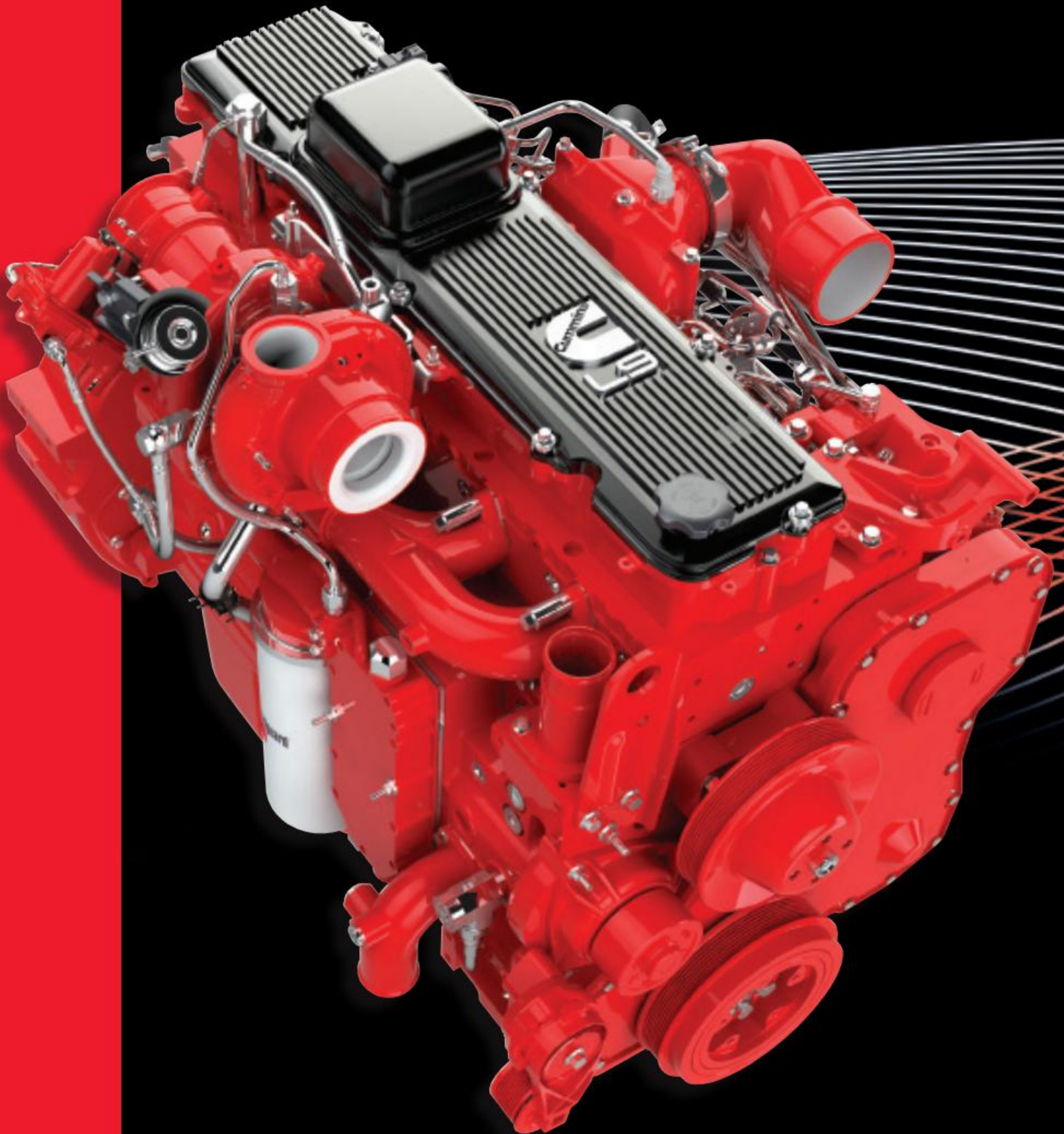
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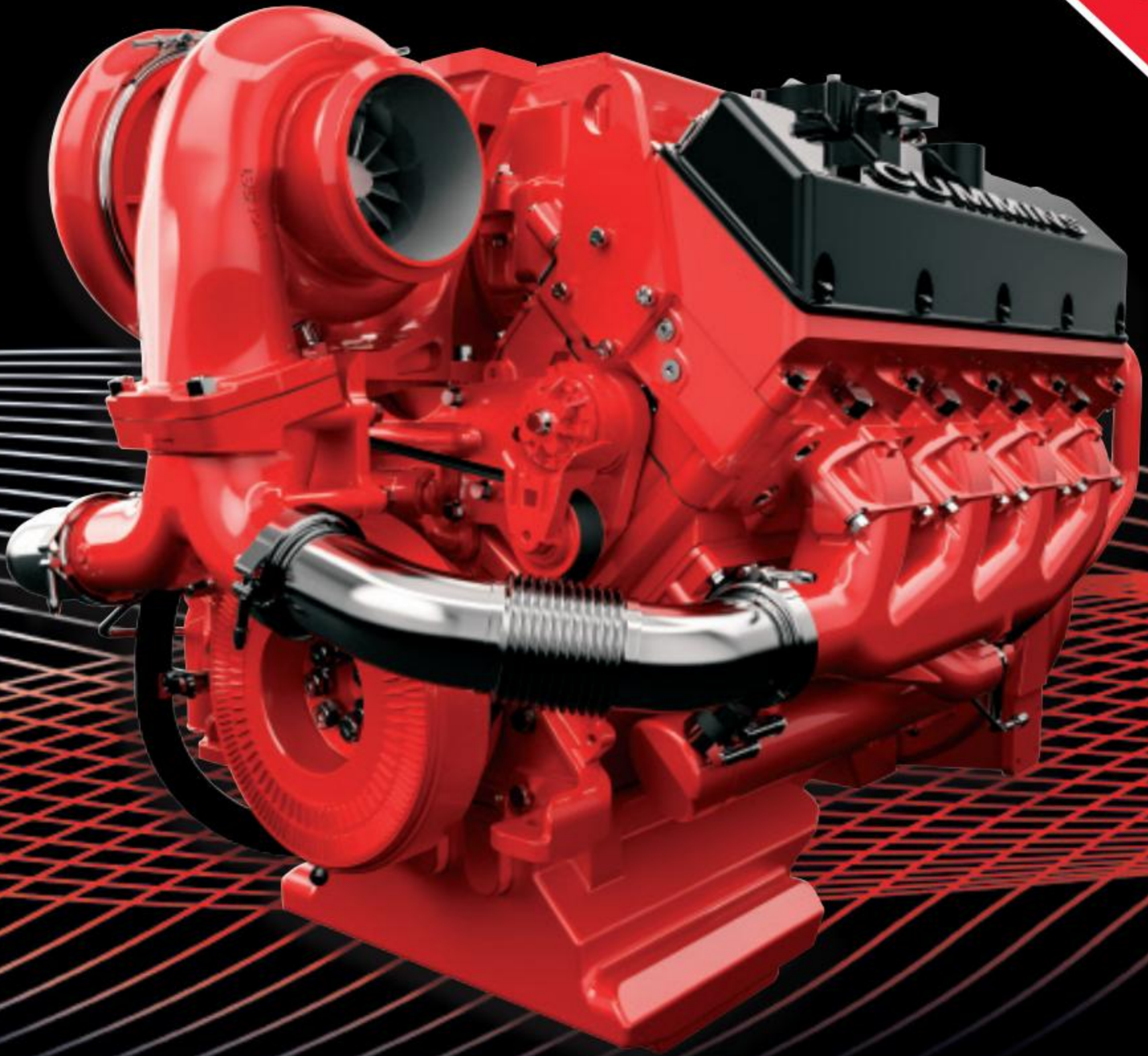
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WIL-BURT

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Patent Pending Quiet Locks Designed for Heavy Payloads



Quiet Sealed Direct-Drive System



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SINGAPORE

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CZ P-10 C

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15 (17)

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- › ENHANCED FRONT AND REAR SERRATIONS FOR FAST AND RELIABLE HANDLING

	FRAME	GRIPS	TRIGGER	SIGHTS	OVERALL LENGTH (MM)	BARREL LENGTH (MM)	HEIGHT (MM)	WIDTH (MM)	WEIGHT (G)	SAFETY FEATURES
CZ P-10 C	POLYMER	-	STRIKER FIRED DOUBLE ACTION	LUMINESCENT OR TRITIUM	187	102	132	32,2	760	TRIGGER SAFETY; DROP SAFETY # 1 STRIKER BLOCK; DROP SAFETY # 2 TRIGGER BAR SAFETY
CZ P-10 C FDE	POLYMER	-	STRIKER FIRED DOUBLE ACTION	TRITIUM	187	102	132	32,2	760	TRIGGER SAFETY; DROP SAFETY # 1 STRIKER BLOCK; DROP SAFETY # 2 TRIGGER BAR SAFETY



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CZ BREN 2

5,56x45 MM NATO	30
7,62x39 MM	30

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- › HIGH ACCURACY AND SERVICE LIFE
- › LOW WEIGHT AND COMPACT DIMENSIONS FOR FAST AND COMFORTABLE HANDLING
- › AMBIDEXTROUS CONTROLS FOR OUTSTANDING ERGONOMICS
- › SHORT STROKE PISTON SYSTEM

		CALIBER	MAGAZINE CAPACITY	FRAME	BARREL LENGTH (MM)	LENGTH OF WEAPON WITH STOCK FOLDED/UNFOLDED, RETRACTED-EXTENDED (MM)	HEIGHT WITHOUT MAGAZINE (MM)	WIDTH OF WEAPON WITH STOCK FOLDED/UNFOLDED (MM)	WEIGHT WITHOUT MAGAZINE (G)
CZ BREN 2	8"	5.56x45 mm NATO	30	ALUMINIUM	207	505/684-733 ± 10	202 ± 5	80/104 ± 5	2891 ± 50
CZ BREN 2	11"	5.56x45 mm NATO	30	ALUMINIUM	280	577/762-807 ± 10	202 ± 5	80/104 ± 5	2986 ± 50
CZ BREN 2	14"	5.56x45 mm NATO	30	ALUMINIUM	357	657/840-884 ± 10	202 ± 5	80/104 ± 5	3103 ± 50
CZ BREN 2	9"	7.62x39 mm	30	ALUMINIUM	227	525/706-753 ± 10	202 ± 5	80/104 ± 5	2847 ± 50
CZ BREN 2	11"	7.62x39 mm	30	ALUMINIUM	280	573/755-802 ± 10	202 ± 5	80/104 ± 5	2896 ± 50
CZ BREN 2	14"	7.62x39 mm	30	ALUMINIUM	357	650/833-880 ± 10	202 ± 5	80/104 ± 5	3009 ± 50

Stated dimensions may be different in particular design and configuration.

Product focus



MODULAR SURFACE MOUNTED HIGH SECURITY

TERRABLOCK®

The new security barrier by Hesco is a unique range of above ground, completely surface-mounted security barriers. Designed for corporate and civilian environments, HESCO® TERRABLOCK® offers the best in public safety and security with minimal disruptions and little or no impact on the surrounding environment and aesthetics, allowing people and businesses to operate as normal with complete confidence and peace of mind.



Product focus

Used to protect work places, venues, remote utilities and critical infrastructure, HESCO TERRABLOCK can be easily and quickly constructed utilizing local resources with HESCO Technical Support providing you all the support you need throughout your project, from design to installation and maintenance.

A new permanent solution to your security needs, TERRABLOCK can integrate with your current security measures and be installed with enhancements such as razor-wire, Perimeter Intrusion Detection systems, optical surveillance, radar systems and vehicle gates or portals.



TERRABLOCK XL

TERRABLOCK XL was designed for the London 2012 Olympic Games to provide crowd control and then developed to include our patented Energy Transfer System (ETS) and offer protection against hostile vehicle attack.

Engineered for city landscapes, sport and entertainment events, XL units are delivered flat-packed for easy storage, allowing deployment whenever required. As a completely modular solution multiple units can be pinned together and create barriers of continuous, unrestricted length over even, undulating or sloping ground.

After an event or threat level has lifted, XL is as easy to remove as it is to install, providing a stress free and completely clean recovery.

TERRABLOCK XR

TERRABLOCK XR is a rapidly deployable, crowd control security barrier, providing a short term solution to event security and police requirements. Developed in conjunction with UK Government testing, XR provides an enhanced level of security when compared to traditional barriers.

TERRABLOCK XR can be integrated with other TERRABLOCK products in response to different site or security requirements.

With no need for foundations or site preparation, XR can be stored ready for deployment at a moment's notice, allowing quick response to changing circumstances. The ballast bags, which are supplied with the product, can be kept filled or emptied after installation, adding to the flexibility and ease of use.

TERRABLOCK XS

TERRABLOCK XS has been installed in austere and remote locations, providing an enhanced level of high security to oil and gas operators in some of the harshest conditions. The combination of a geotextile lined mesh basket, fully integrated with a welded mesh post and panel system, provides the user with the ability to use local fill material to create a perimeter security barrier.

As with all TERRABLOCK products, XS can be integrated with pedestrian and vehicle gates for a complete perimeter solution.

TERRABLOCK XT

TERRABLOCK XT enables security services the ability to quickly and efficiently upgrade and enhance existing perimeter security.

Providing a base from which a complete perimeter security solution can be built upon and allowing for enhancements such as perimeter intrusion detection systems, surface mounted poles for lighting and CCTV, as well as access control points and concertina razor wire.

This option, to seamlessly integrate and upgrade current security features, creates an extremely cost effective solution when compared to traditional fenced perimeter.

TERRABLOCK XV

TERRABLOCK XV is unique amongst any surface mounted security barrier in that it not only provides anti-climb protection, but also is crash tested to ASTM:M50P1. The pinnacle of the TERRABLOCK range, XV

is a formidable security barrier ensuring the security and safety of those it is installed to protect.

Developed and tested over a 5 year period, TERRABLOCK XV can be deployed in urban or remote environments to protect assets from critical infrastructure to commercial operations.

The depth of knowledge and experience which has been poured into the development of TERRABLOCK XV, coupled with the extensive worldwide testing, will give any user the peace of mind that XV is the right solution for them.

With each new development, and with new emerging threats, HESCO TERRABLOCK units have been tested to perform against real world threats, by leading testing authorities and by experienced engineers and technicians in a diverse range of environments, ensuring each unit remains at the forefront of protection.

ONLY HESCO GROUP, innovate and manufacture HESCO barriers, from decades of product development and working with customers to design the very best in defensive earth filled structures. Support and training packages are available around the world and allow end users a direct line of communication from inquiry to installation and maintenance, ensuring security and defense is not compromised.

For more details, contact
terrablock@hesco.com
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Hesco bringing defence expertise to civilian security with TERRABLOCK®



Hesco bringing defence expertise to civilian security with TERRABLOCK® July, Leeds, UK: The UK and USA manufacturer of defensive barriers and body armor is launching a new range of surface-mounted security barriers, HESCO® TERRABLOCK®. Engineered and tested to deliver hostile vehicle mitigation and deter unauthorised access, the TERRABLOCK range has been designed to be rapidly installed across diverse environments, enhancing existing security measures as well as enabling institutions, events and businesses to maintain operations in response to an ever changing threat.

Having successfully deployed HESCO security barriers at the London 2012 Olympics, the five-year development has seen TERRABLOCK evolve in response to security challenges now faced, creating a unique security barrier, integrating earth-filled vehicle barriers and climb resistant weldmesh panels.

Adam Wilding-Webb, Director of High Security, says:

"This next generation of HESCO security barriers build on our extensive experience in protection and a deep understanding of how to respond to changing threats. The modular design of TERRABLOCK

provides the ability to easily and effectively upgrade site and event security in response to changing threat levels, whilst minimising the installation impact on the workforce and environment. The importance of having the right solution is paramount."

HESCO TERRABLOCK has already been used to protect Oil and Gas infrastructure, and most recently event space and public arenas such as the Royal Armouries Museum, Leeds.

Andrew Brown, Royal Armouries after the recent installation of TERRABLOCK XL:

"Since the installation of the HESCO barrier, staff and visitors have expressed that they feel more reassured and safer for its presence. The installation team were incredibly patient, making sure this truly was a solution for our needs and the build was fast with no disruption to our business."

The TERRABLOCK product range includes five designs ranging from a low barrier for crowded public events, engineered to stop attacks using vehicles as a weapon, to a anti-climb M50P1 crash rated barrier that can stop a 7.5 tonne truck travelling at 50mph.

The development team behind TERRABLOCK include security and military specialists working closely with end-users and testing centres to create a product that blends into the built environment, reassures the workforce and general public, and most importantly delivers safety and security to deter sabotage and mitigate threats.





When Success is Vital

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Innovation that works! Adventure Tactical will bring to DSEI its latest Canadian Made technologies. Adventure Tactical Inc. provides quality products that are versatile, unique and can be relied upon to deliver outstanding performance. A trusted international supplier to the defense forces of over 25 countries, Adventure Tactical products are truly the finest in their class.

A world leading designer and manufacturer of infrared technologies, Adventure Tactical products have been relied on by elite military teams across the globe when survival has been vital, no matter the environment! Today, Adventure Tactical has incorporated the latest technologies to offer yet again the best solutions to help protect those who protect us.

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Left: VIPIR™ SWIR Helmet light shown mounted on the back of a soldier helmet.

Trilobyte™ Combining the advanced technology found in our VIPIR™ series together with the robust design and user-friendly operation that we are known for; the Trilobyte™ sets the new standard in lights for HALO, HAHO and other airborne applications, while still maintaining its versatility for land and waterborne applications.



Stealth Illuminator

HLZ/DZ Expeditionary drop/Landing Zones: HLZ/DZ provides helicopter and airplane pilots with an Infrared or visual runway or landing pad. The system is remotely controlled to up to 1800 meters, and due to our unique ADHOC mesh network, configurable for any runway length or shape. The HLZ/DZ is well suited for temporary and covert landing stations, parachute jumps, Medical Evacuation, Search and Rescue missions, as well as various Special Forces combat requirements. The HLZ/DZ comes in a compact yet rugged combat case that makes them the most compact and most effective in their class.



About Adventure Tactical:

Proudly Canadian, Adventure Tactical, a division of Adventure Lights Inc., has been providing quality products that have proven their value and durability in-field for over 20 years.

A leader in Identification of Friend and Foe (I.F.F.) technology, Adventure Tactical also offers a wide range of solutions to help protect those who protect us!

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- Vehicle Identification & Safety Systems
- Expeditionary Landing & Drop Zones
- Renewable Energy Man Portable Power Systems

Visit www.adventuretactical.com and www.adventurelights.com for more information.

VIPIR™ Visual/Infrared marker, beacon, and strobe: VIPIR different configurations enable the user to toggle between up to 14 different functions including features like Auto-Synchronization and signal recording and playback. An iconic product to many Special Forces Teams, it is well suited for Personnel Recovery and Identification, situational alertness, command and control, [CSAR], vehicle driving, and parachute jumps, among others.



Left: Trilobyte™ Helmet light; leftside controls shown

Left and rightside controls combine to provide a vast collection of controls, settings and functions organized in an easy to navigate system

Stealth Illuminator Vehicle illumination system: STEALTH ILLUMINATOR is a compact Infrared vehicle headlight that requires minimum vehicle architecture dependency, delivering driver assisted vision and allowing the driver to operate the vehicle in complete darkness! It is well suited for vehicle driving, Beach Landings and Amphibious Assaults, Night time marine operations, and watch towers. The Stealth illuminator projects an infrared beam to present soldiers with a bright vision at distances beyond 1000 meters!

Right: 6 Light Expeditionary Landing Zone System



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Modern data intensive communications require solutions which can support extended transmitter operations in demanding conditions. At DSEi Barrett Communications (Stand N7-160) will launch its new, liquid-cooled 4075 high power software-defined radio (SDR) HF transmitter which comprehensively meets this need.

The 4075 couples 500W and 1kW linear amplifiers with Barrett's 4050 SDR HF transceiver in a package that offers continuous coverage from 1.6-30MHz and a range of communication modes.

The 4075 amplifier has a unique, advanced liquid cooled solid state design which reduces the requirement for forced air cooling, resulting in less power consumption and a better working environment. This innovative cooling system allows the transmitter to run continuously at optimum temperatures, resulting in greater reliability and extended service life.

The 4075 transmitter has a 2G and 3G Automatic Link Establishment (ALE) options and can be controlled remotely via IP or WiFi. It is field re-programmable via USB and Ethernet allowing the end user to update system software, and a micro SD card is also available which provides enhanced flexibility for system updates, language, and display customising.

The Barrett 4075 HF transmitter provides the right solution for those who operate in austere conditions. Peacekeepers, military forces, security organisations and non-government organisations all require easy to use, robust and reliable long-range data communications equipment with reduced logistic demands. The Barrett 4075 HF Transmitter is the answer to this requirement.

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- Compatible with existing 4 & 6 digital selective calling radio networks
- 2G & 3G Automatic Link Establishment (ALE) options
- ARINC ICAO Annex 10 Aeronautical Selcall option
- Field re-programmable via USB and Ethernet



Barrett 4050 HF SDR transceiver

Visit us at DSEI 2017, stand N7-160



LUTRA Associates Limited at DSEI

At DSEI Lutra will be looking to achieve 4 outcomes.

- Promoting the interests of its partners that are exhibiting
- Being a contact point for people who wish to talk to partners who are not present
- Being available to assist other potential partners at the exhibition or in the future
- Continuing to refresh and expand our wider network.

In addition we will be seeking to update ourselves on new capabilities, technologies and concepts.

Having been one of the founding fathers of the event Lutra has a strong interest in DSEI and firmly believes in the opportunity it provides for the defence and security

sectors to come together and exchange ideas. To that end anyone who wishes to meet up with Lutra's Chief executive is advised to contact him before the event by e mail tim.otter@lutra-associates.com. Or phone **+44(0) 1963 548005**.

Some of the innovative ground breaking partner companies that Lutra will be assisting or representing at DSEI are;

PPD

Stand N3-660.

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A small Croatian company which makes world leading unattended vehicles usually used for combat engineering and mine clearance but also for high risk fire-fighting and CBRNe/Hazmat reconnaissance and disposal and other dangerous tasks where sending people is inappropriate.

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A Canadian company specializing in the design, manufacture and then running of survival training systems for the crews of helicopters, boats, vehicles and aircraft which venture over or onto water. In service worldwide with military, harbour management, rescue and off shore helicopter users.

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Lutra's other activities



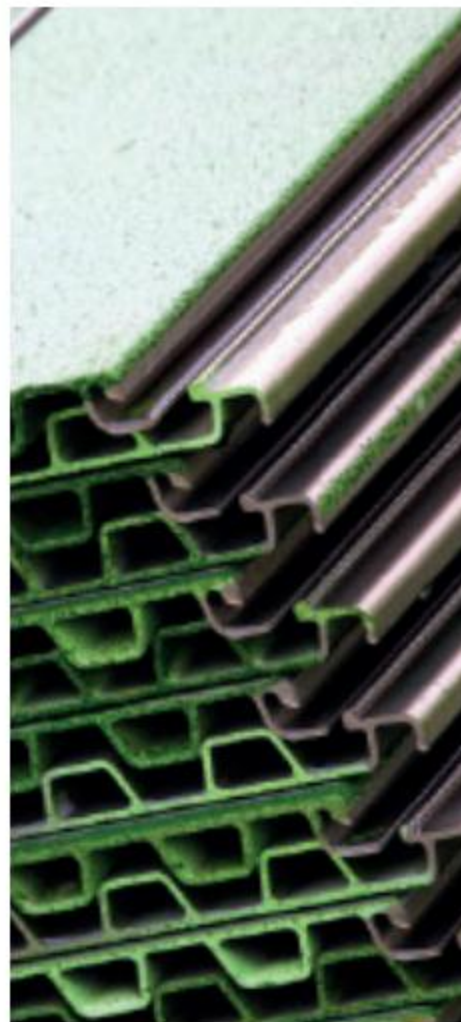
In addition to helping these and several other UK and overseas companies with business development, route to market and strategy advice Lutra is active in bid assistance, manufacturing, company organization and operations advice and export work for many companies on a continuing or single activity basis.

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WEW

A THIELMANN COMPANY

WEW CONTAINER SYSTEMS SHOWCASES ULTIMATE

2017 has been a year of big changes for WEW. Following its 2016 acquisition by THIELMANN – The Container Company, WEW is approaching DSEI with renewed drive and will use the exhibition to strengthen its reputation as the supplier of choice for modular fuel and water delivery systems within the scope of THIELMANN's container systems expertise.

At DSEI 2017, WEW is focusing on its offerings in two main areas: self-contained modular refuelling and water systems, and low profile solutions for utility and protected vehicles. With a recent major sale into a Middle East military customer, WEW is looking to build on this success with its Fuel Storage and Delivery systems designed to meet a wide range of remote fuelling and water

requirements. These 'drop and go' systems can be tailored to meet customer requirements across a range of applications, including land vehicle, rotary and fixed-wing aircraft refuelling, as well as bulk water storage and distribution.

“WEW delivers water and fuel excellence through experience”

WEW is already moving on low profile solutions for military vehicles in response to increased demand for flexible, mobile systems to serve small, forward-deployed units. At IDEX 2017 the company teamed with NIMR to display an integrated solution for

delivering water to remote patrols: a 2 m³ water system with its own pumping and UV radiation module mounted to the NIMR Hafeet 620A 6x6 utility vehicle.

Looking further ahead, WEW is getting ahead of the curve and aligning itself to meet emerging autonomous support requirements. WEW and its sister companies are currently leveraging their extensive track record in smaller 200 – 1,000l IBC modules to develop a range of palletised loads suitable for future autonomous support platform operations.

“Perfectly aligned with emerging autonomous support requirements”

FUEL. WATER. EXPERTISE.

www.wew.de

MOBILITY FUEL & WATER SOLUTIONS AT DSEI 2017



Now, with autonomous systems forming an ever larger part of operations, WEW is placing itself at the forefront of the market to fill operational gaps, and remain the market leader for fuel and water requirements across the military spectrum.



WEW Transportable Fuel Station In service in the Middle East

Military forces around the world rely on WEW systems to keep their deployed forces fuelled and watered, and WEW's experts look forward to meeting with new customers at DSEI 2017 to welcome them into the WEW family.



Hook-arm Deployable Fuel & Water Systems from WEW

ABOUT WEW

Established over 75 years ago, WEW specializes in containerized solutions for some of the most toxic and hazardous chemicals known to man. WEW was acquired by THIELMANN - The Container Company in mid 2016, in order to broaden THIELMANN's range and capabilities in both defence and larger volume storage and transport solutions.

ABOUT THIELMANN - The Container Company

As the world's leading manufacturer of stainless steel containers, THIELMANN delivers unsurpassed container expertise that customers from a broad range of industries trust and depend on. The profound knowledge and expertise we've gathered in more than 275 years of container production and use, in a broad and diverse range of industries, render us uniquely qualified to confidently and successfully tackle your business challenge.

Sales Contact:

Peter Huges

WEW Container Systems GmbH

Ringstraße 65a

57586 - Weitefeld - Germany

Email: Tanks@thielmann.com

Office: +49 2743 9222-70

Marshall a long standing partner for military customers

Camp infrastructure, military medical solutions, deployable systems and vehicle systems are all at the centre of Marshall Aerospace and Defence Group's Land Systems business, but what lies behind this?

The company is a long standing partner to military users around the world, providing design, manufacture, and through life support for all its solutions. It is a leading integrator and prime contractor supplying capability

which enables personnel and equipment to perform in the most arduous and difficult environments.

As a division within the Marshall Aerospace and Defence Group based at Cambridge in the UK, Land Systems was established in 1946, supporting the UK Ministry of Defence in the supply of vehicle based shelters and bodies. Today it is an international company providing solutions and services to a global market. It has been recognised for its innovation and export capability by the award of two Queen's Awards.

The manufacturing and Head Office facilities are in the UK and as part of the Marshall Aerospace and Defence Group, Land Systems also operates and offers support through its international offices in Ottawa Canada, Oslo Norway, Leiden the Netherlands, Richmond Australia and Abu Dhabi in the United Arab Emirates.

standing partner to s around the world

■ Marshall

Marshall deployable hospital supplied to the UK MOD. This demonstrates the company's capabilities of working as a prime contractor with the customer to define the requirement, design the system and manage the supply chain to rapidly deliver a quality solution.

Capability

At the heart is a strong capability in design, development, systems engineering and project management of complex, integrated workspaces and vehicle systems for defence and security applications such as C4ISR, Medical, Forensic and Medical Analysis, Command and Control, and Workshop applications.

The proven shelter designs, whether fitted on vehicles or free standing, can provide protection from CBRN, blast, RFI and EMP.

Marshall has developed standard products and systems and then using its extensive systems engineering skills brings to life the bespoke solution to its customers' requirements. Adopting this approach means reduced risk, reduced through life and overall system costs, quicker delivery, upgrades provided more efficiently,

reduced training burden, and increases the interoperability between systems of the same design type, provides spares and maintenance support more quickly and reduces obsolescence management.

The company's manufacturing capability is all-embracing stretching from initial material forming through to extensive painting, finishing and testing facilities. Marshall is approved to ISO 9001 and as such holds comprehensive processes and procedures governing all aspects of production.

In support of its systems integration capability Marshall maintains the skills to cover all areas from requirements capture, development and conflict resolution to system engineering, engineering design, to human factors, mechanical, electrical/electronic, stress, safety and ILS engineering.

Support

The support operations are fully focused on ensuring that our products are always available for operations. Marshall has a proven track record of providing complete support solutions and is fully committed to ensuring support is equally considered from the outset of a programme along with the design.

It achieves this by applying the ILS philosophy of balancing the reliability, maintainability and supportability characteristics of the system to achieve not only the optimum Life Cycle cost but also to ensure that a high availability is maintained of the system for operations.

Recent Successes

Recent contracts which have epitomised this style of work have been the supply of a major hospital to the UK MOD where Marshall was the prime contractor, a long term support contract where the company is responsible for refurbishing the UK's fleet of shelter units, CT Scanners for the French Defence Medical Services,



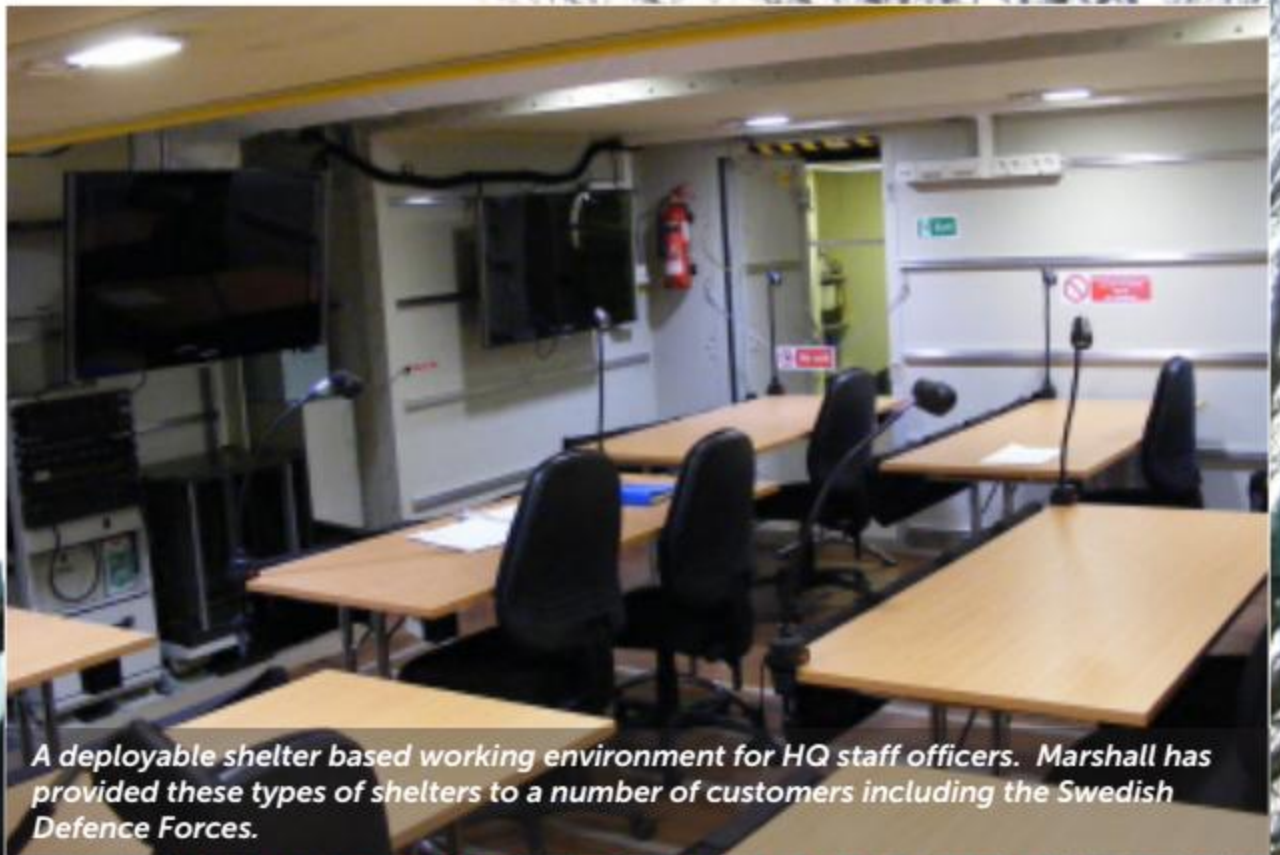
Marshall has provided protected shelters to the Irish Defence Forces EOD teams for deployment in the Middle East. These units encompass the company's vehicle and systems engineering skills to deliver a system which not only protects the operators but also provides a quality working environment.

protected vehicle shelters for the Irish Defence Forces, load beds for the New Zealand MOD, and command and control working shelters for the Swedish Defence Forces.

<http://marshalladg.com/land-systems/>



3 French CT Scanners prior to delivery to the customer. Marshall was awarded a Queen's Award for Innovation for the design which enables the scanner to be up and running within four hours of arrival. The company has worked closely with Phillips Healthcare developing this life saving capability to the UK and Norway with other customers in the pipeline.



A deployable shelter based working environment for HQ staff officers. Marshall has provided these types of shelters to a number of customers including the Swedish Defence Forces.



Marshall has provided vehicle loadbeds for the UK MoD, the New Zealand Defence Forces and for global vehicle OEMs. These demonstrate the company's capability to design and manufacture standard product and then customise them to individual customer requirements so reducing both cost and delivery time.

DSEI
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L3 Delivers Its 4,000th MX™-Series Electro-Optical/Infrared Turret



**L3 WESCAM's MX™-Series
Air • Land • Maritime**

L3 Technologies (NYSE:LLL) announced today that it has delivered its 4,000th MX™-Series electro-optical/infrared (EO/IR) imaging turret since the initial launch of the product line in 1997. This milestone delivery of L3's MX™-20D to a government customer will aid close air support missions from long-endurance fixed-wing aircraft. L3 WESCAM products are on exhibit at the 2017 International Paris Air Show in the L3 Pavilion – C2.

"We are extremely proud of this achievement and the breadth of MX-Series deployments worldwide," said Michael T. Strianese, L3's Chairman and Chief Executive Officer. "These systems are field-proven, state-of-the-art technologies that support the U.S. military, our foreign allies and law enforcement in their mission of preserving global security."

"Our MX Systems operate with outstanding stabilization, provide long-range performance and deliver exceptional imaging across the

visible and infrared spectrums," said Mike Greenley, President of L3 WESCAM, which is part of L3's Sensor Systems business segment. "As the complexity of missions continues to grow, we remain committed to providing an innovative portfolio of quality solutions designed to address our customers' cost, capability and platform requirements."

L3 WESCAM serves all segments of the airborne, land and maritime markets with advanced EO/IR imaging and targeting systems (MX-Series) and modular system solution kits (MatriX™). MX-Series turrets are operational across 74 countries, on more than 137 different types of platforms, and are supported by more than 14 globally deployed authorized service centers and a team of field service technicians who are available for dispatch 24/7 to anywhere in the world.

Headquartered in New York City, L3 Technologies employs approximately 38,000 people worldwide and is a leading provider of a broad range of communication, electronic and sensor systems used on military, homeland security and commercial platforms. L3 is also a prime contractor in aerospace systems, security and detection systems, and pilot training. The company reported 2016 sales of \$10.5 billion.

To learn more about L3, please visit the company's website at www.L3T.com. L3 uses its website as a channel of distribution of material

company information. Financial and other material information regarding L3 is routinely posted on the company's website and is readily accessible.

Safe Harbor Statement Under the Private Securities Litigation Reform Act of 1995

Except for historical information contained herein, the matters set forth in this news release are forward-looking statements. Statements that are predictive in nature, that depend upon or refer to events or conditions or that include words such as "expects," "anticipates," "intends," "plans," "believes," "estimates," "will," "could" and similar expressions are forward-looking statements. The forward-looking statements set forth above involve a number of risks and uncertainties that could cause actual results to differ materially from any such statement, including the risks and uncertainties discussed in the company's Safe Harbor Compliance Statement for Forward-Looking Statements included in the company's recent filings, including Forms 10-K and 10-Q, with the Securities and Exchange Commission. The forward-looking statements speak only as of the date made, and the company undertakes no obligation to update these forward-looking statements.



High-Grade, High-Reliability Connectivity...



AirBorn

AirBorn has been manufacturing high reliability interconnect systems for almost 60 years with leading-edge, innovative technology that is more reliable and better performing than practically all other alternatives.

Founded in 1958, AirBorn began producing electronic connectors for the military and aerospace industries. Growing a business takes drive, passion and determination. Today, we are proud to be well-known as a highly-diversified manufacturing company employing roughly 1,400 people worldwide in nine plants with over 300,000 sq. ft. of manufacturing space.

Military Interconnect Systems

Our advanced technologies, experienced design support, incomparable lead times and personalized customer service provide customers with complete solutions to a vast array of highly specialized design requirements in diverse markets and applications.

Innovative Interconnect Solutions

Providing support to the defense industry requires, top-quality products for mission-critical applications, and industry-leading companies like NASA, Raytheon, Thales and Lockheed-Martin have come to rely on the quality and reliability of our innovative interconnect solutions to ensure their systems work in the most harsh and demanding environments.

Commercial aerospace applications demand high reliability under the extreme environmental conditions at 30,000 feet. For over 50 years, AirBorn engineers have been designing interconnect solutions to meet the highest standards of testing and certification required by the aerospace industry.

Space programs supported include SBIRS, GOES-R, Globalstar, Swarm, New Horizon Space Probe, Mars Lander, Mars Rover, Mars Reconnaissance Orbiter, and the International Space Station.

Over the years, our customer base has expanded to include commercial applications in fields such as medical technology and geophysical exploration..

Military Cable and Wiring Harnesses

AirBorn will also design and assemble cable and wiring harnesses for your custom interconnect requirement, including:

- **Discrete wire harnesses** – simple 2-wire to complex with PCB integration
- **Multi-connector cables**
- **RF cabling**
- **Ribbon cables** (jacketed and shielded)
- **Fiber optics**

We use the phrase "value-added service" to describe our approach to providing our customers with a complete solution that matches their needs and requirements.

- **Standard Catalog and Custom Connectors**
- **Standard Catalog Jumper Cables** (wire and flex circuit) and Custom Cable Harnesses
- **Custom Flexible Circuits**
- **Electro-Mechanical Assemblies** (chassis/box-builds)
- **Testing and Qualification** services to ensure that product meets all requirements (include military qualification testing)

Custom Electronically-integrated Solutions

In short, AirBorn is ONE company that can provide you with a complete, electronically-integrated solution. We have developed a team of the most experienced and innovative craftsmen in the industry. When your tooling is designed and built within our in-house tool room, you



can be assured the quality you see on the first run will be the same throughout the life of your product.

When you're ready to prototype your part, we're ready for you. Our ability to efficiently produce the first generation of your part, as well as the large production runs saves you time and money. We can often have a prototype run of small quantities of parts available in a few weeks.

AirBorn is bridging the gap between tomorrow's technologies and today's expectations. We are committed to the future of manufacturing with the introduction of leading-edge automation in both production and assembly.



AirBorn offers the broadest range, options and expertise in interconnects for Space, Air and Defense applications

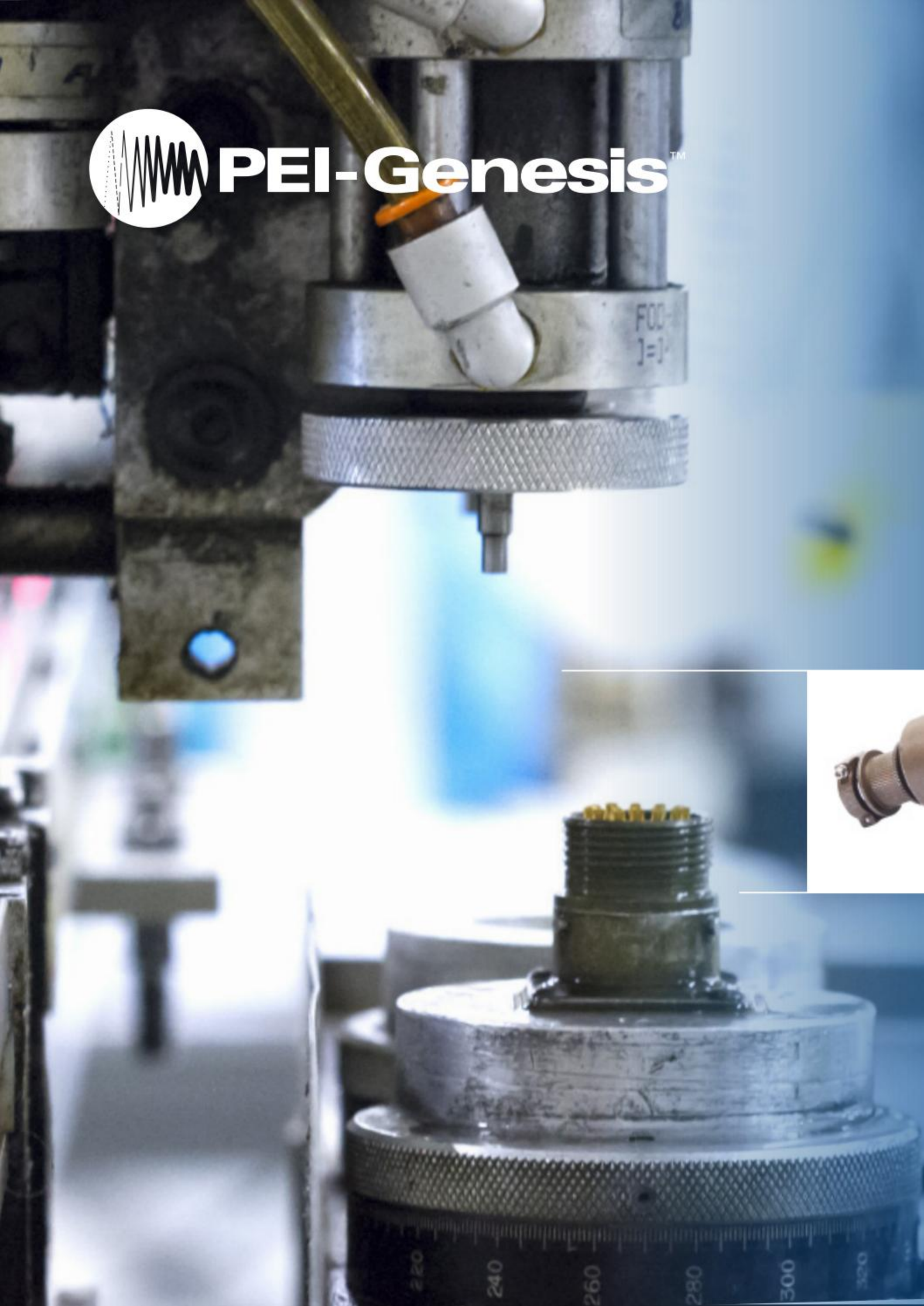
- Copper & Active Optical Cable Assemblies
- Flexible Circuit Assemblies
- Proven Space Flight Heritage
- Complete Box Builds
- Lab Services

AirBorn

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WHEN THE DESIGN MATTERS, **PEI-Genesis DELIVERS**

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Oxley Sets the Standard in High Specification LED Lighting at DSEI

Oxley will be exhibiting the new Par 64 LED Replacement Landing Light at DSEI

The Oxley PAR 64 light offers significant savings over sealed beam halogen units through reduced power consumption, a 100 fold increase in operational life and reduced maintenance cycles.

The unit offers much greater reliability than halogen technology. It requires no aircraft modification and delivers the full optical power and beam pattern of the unit it replaces. The light doesn't suffer degradation over time and has an MTBF of 23,000 hours, the unit is repairable with a replaceable lens and offers a peak intensity of 600,000 cd.

The team will also be showcasing a new Helicopter Emergency Egress Lighting System (HEELS) which incorporates a number of lighting pods fitted around the helicopter doors and a full control system, the lights illuminate through a number of triggers including water ingress, inertia and power changes.

Oxley has many years' experience in the military aircraft lighting arena and will be displaying a full range of military aircraft lighting including high intensity LED taxi and landing lights, position lights and anti-collision lights along with a ground breaking dual-mode

landing light that has been designed by Oxley for the US Air Force and is being fitted to the legendary A10 Thunderbolt II close support ground attack aircraft after 'phenomenal' success in the most rigorous testing.

Oxley also delivers a range of solutions on land which provide reduced through life cost and energy saving whilst also offering a reliable fit and forget option.

Oxley is currently supplying LED internal crew compartment lighting for the General Dynamics Force Protection Foxhound light protected patrol vehicle. Foxhound is equipped with intelligent internal lights. In physical terms the LED technology means they are very low profile – giving more headroom for the soldiers travelling in the vehicle. As the back door opens the light goes from white down to red – NVIS friendly capability in a single compact unit.

The DC Combi light has a rugged design which provides excellent resistance to shock and vibration and provides high reliability in the field. The light is a 'fit and forget solution' and has a MTBF of over 50,000 hours, Oxley has sold over 7,500 of these lights to military operators around the globe.

THE OXLEY PAR 64 LANDING LIGHT

**REQUIRES NO AIRCRAFT MODIFICATION AND DELIVERS THE FULL
OPTICAL POWER AND BEAM PATTERN OF EXISTING TECHNOLOGY**

OXLEY 
www.oxleygroup.com





HIGH SPECIFICATION LED LIGHTING FOR MILITARY APPLICATIONS

Oxley has also developed solutions for the General Dynamics Ajax vehicle. This includes interior DC Combi dual mode crew lighting and the Gooseneck LED task light designed and manufactured to meet LED Defence Standard 59-411, and Land Class A and B EMC benchmark for UK military equipment.

The Oxley Gooseneck is flexible and dimmable and incorporates state of the art LED technology to provide a rugged task light, the light is designed with high quality components to provide a high vibration and shock proof construction for reliability in the field. The light has a secondary colour function with an NVIS friendly option available for operations with night vision goggles. The land product range also includes infra-red vehicle lights and a range of high intensity searchlights.

Oxley sources the highest quality LEDs from specialist manufacturers, but what makes the equipment stand out is the integration of those LEDs into specialist systems designed for military vehicles including leading heat sink technology, meeting the most rigorous EMC and sealing qualifications and complying with stringent military standards.

The Oxley team also produces a range of naval lighting solutions including a full wheel marked LED navigation suite which meets COLREGs and is suitable for any vessel over 50m in length. The lights, have just set sail fitted on to the Queen Elizabeth Class Aircraft Carrier in the UK, they are rugged, sealed to IP67, NVG friendly and don't require replacement bulbs. Alongside this is a suite of LED submarine lighting, available as direct replacements for 8, 18 and 36 watt fluorescent units. All lights have been designed to withstand shock and vibration levels experienced at sea and the range features intelligent heat management software to protect the units. All units meet EMC requirements of MIL-STD-461E and offer substantial through life cost savings.

To see a demonstration of the Oxley lights and talk to a member of the Oxley team, please visit Stand S3-330 in the UK Pavilion at DSEI in London on 12-15 September or visit the website at www.oxleygroup.com

PIONEERING ADVANCES IN EXPLOSIVES TRACE DETECTION (ETD)

ATTRIBUTED TO VAL CHRYSOSTOMOU,
PRODUCT SPECIALIST, SMITHS DETECTION



An overview of ground-breaking developments in ETD technology and equipment

Everyone wants to live in a safe, secure world and the demand for effective, easy-to-use tools to identify any potential threats is only likely to grow as events around the world continue to shock and devastate. Protecting the general public and armed forces against IEDs (improvised explosive devices) is a primary goal for military Explosive Ordnance Disposal (EOD) teams, police forces and private security specialists in a variety of environments worldwide.

Often used by terrorists to attack soft targets and by insurgents as weapons against a stronger enemy, IEDs are both inexpensive and easy to build, yet can achieve significant strategic and tactical results. ETD technology is critical in the fight to stay ahead of the danger posed by these deadly weapons. Currently available explosives detection equipment ranges from large scale X-ray systems or portals to desktop and hand-held devices.

TYPICAL LIMITATIONS

The challenge has always been to develop an ETD device, which can screen multiple surfaces in a variety of situations and locations – and provide operators with real-time, accurate information about traces of explosives on the person, package, vehicle or surface checked. It needs to be able to detect commonly used explosives and produce fast, accurate results with a

www.smithsdetection.com

low instance of false alarms. There is also the usual demand for something affordable, robust and easy to operate and maintain.

ETD equipment has historically fallen short in meeting these demands on several levels. It has not proved flexible enough to offer full, fast and effective screening capabilities whenever and wherever needed. For example, it is either too large and heavy to move from location to location or too slow to warm up, analyse samples and clear down – resulting in a reduction in both efficiency and number of samples tested, which is far from ideal in high threat situations. The level of false alarms, battery life and consumables usage have all continually proved problematic and overall, it has been just too difficult to use many currently available ETD devices in tough situations.

Consequently, screening has not generally reached an optimum degree of efficiency as a method of safeguarding people and assets from IEDs.

GAME-CHANGING TECHNOLOGY

However, devices are now available which use new technologies, eliminate the drawbacks of previous equipment and fulfill the user wish list. One key development is an advanced pinhole inlet system, which eliminates sample overload by preventing excess sample material from entering the cell – only the amount required for detection can get through. As a result, the device clears down quickly (even when the sample is 1000 times the limit of detection) and hence increases throughput.

There are many other advances, which combine to make the latest equipment far surpass the limitations of its predecessors. For example, a particle sample collection system featuring a probe which, when inserted into the sample inlet, ensures that every sample swab is correctly positioned for desorption. This way, there is minimal operator handling and complete, uncontaminated analysis.

To meet the demand for reliable access to evidentiary data, some new devices have an integral camera and GPS so information can be recorded and stored immediately when and where the samples are taken. A full evidentiary package of downloadable data is contained in a single alarm file generated from a single device.

This innovative equipment is small, lightweight, highly portable, easy to use and provides analyses within seconds. False alarms are minimal and a low requirement for

consumables ensure a low cost of ownership. They can be used in a very broad range of scenarios and are robust enough for field operations and military applications. Long lasting batteries also make them ideal for military and civil patrols.

FLEXIBLE APPLICATION

Speed, efficiency, ability to screen many different surfaces and ease of use all combine to bring a new level of versatility to ETDs. They can be used in mobile screening operations at countless locations such as government and commercial building entry points; checkpoints everywhere from car parks and airports to conflict zones; mailrooms; outdoor festivals, and numerous other high-profile events and settings.

There are many potential scenarios including checks by the military, police or security forces on possible bomb building sites, suspicious packages, bags, vehicles and people who may be involved in assembling IEDs. The true mobility of the new equipment can also add an additional layer to security for private providers protecting critical infrastructure from attack by allowing screening not only at entrance checkpoints but also anywhere around a building or site. Reliability and cost efficiency will always be attractive factors for the private sector.

SUMMARY

Many new advanced features have improved the performance of portable ETD devices such that they are now suitable for diverse screening operations and environments. Numerous drawbacks previously associated with this equipment have been ironed out to produce low-cost, low-maintenance and reliable tools easily used to take samples from people, vehicles, packages and other surfaces.

They provide the military, emergency and civilian organisations facing everyday challenges to detect and identify traces of explosives from multiple surfaces and locations with hand-held, fast, accurate devices suitable for use in a broad range of situations. More efficient screening may just help make the world a safer place in the fight against terrorism, IEDs and the people building these explosive devices.

For product information, sales or service, please go to www.smithsdetection.com/locations

✉ karen.kulinski@smithsdetection.com (EMEA) ✉ natasha.perfect@smithsdetection.com (APAC) ✉ dana.gower@smithsdetection.com (Americas)

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Harrington International

The Telecoms - Resilience - mission critical – military - rail - power specialist

HGI are the Lead System Architect of competitive technical power solutions.

Continually faced with increasingly complex solution challenges from a variety of industry segments that share common traits for mission critical power systems.

HGI's reputation in energy security and continuity is built on trust HGI have forged a solid reputation within industry as a result of high-performing products that ensure operational efficiency and power resilience in extreme environmental conditions posed within defence, telecoms and rail sectors.



The companies overarching goal is to provide competitive technical power solutions. HGI excel in supplying unrivalled power products that deliver essential power, while maximising customer's investment.

HGI's products lay at the heart of:

- **Communications, command and control systems**
- **Mission services and support**
- **Protection and mission / combat systems**
- **Surveillance, detection and intelligence systems**
- **Training & Simulation**
- **Reconnaissance, Surveillance, Targeting Acquisition (RSTA)**

Using in house expertise in these areas, HGI develop prime power and standby power products to interact seamlessly with others. HGI maintain a competitive advantage by acting as design authority in complex and critical power projects, by continual developing and customising technical solutions while utilising appropriate engineering processes. Continual research into emerging technologies and assessing applications within new and existing products ensures an unrivalled innovative product range.

HGI develops strong partnerships with platform manufacturers in order to propose an optimised, solution. Platforms and vehicles are increasingly sophisticated and tighter budget constraints are driving a new modular approach in manufacturing by taking standard products and adapting sets quickly and efficiently to meet customers' demands.

The MOD and industry audited manufacturing facilities demonstrate commitment to quality. Operating paralleled lean production lines ensures superior product quality and enables a quick response to urgent

Generators al (HGI)



operational requirements. With a core belief that working in highly skilled cross functional teams makes the company more creative and productive when faced with a challenging new task and ensures every product shares the same DNA.

HGI capabilities extend from the supply of product/mission packages, to full system integration with existing legacy equipment and platforms according to the customers' needs together with support services.

Our power systems are a Key component within

- C4ISR: Computerised Command, Control, Communications, Intelligence, Surveillance and Reconnaissance Allowing the entire chain of command to take advantage of all-source intelligence rapidly, to inform commanders on time with relevant content, to share a common tactical picture, to support decision making, to disseminate commander's intent, to synchronise operations, day and night, in all-weather conditions,
- Cross border security Our solutions allow our tier one clients to efficiently monitor borderlines,

improve reaction time from detection to interception, match the diversity of threat natures and levels and optimise deployment and usage of the different human and technical resources.

- Telecoms / resilience power systems Our power enables the ability to obtain, gather, process and distribute information effectively which is key to gaining and maintaining our countries operational efficiency.
- Military Land operations are quickly evolving, and land forces need new information, communications and operational tools. HGI supplies the power systems that help the world's most demanding land forces to gain and to maintain operational superiority.
- Rail As one of the few generator manufacturers in the UK carrying Network Rail approvals, HGI is in a unique position to meet the need for safe, solid and reliable equipment, designed and built to withstand the demands and dynamics of the rail environment both on-board and trackside. We have closely partnered the UK's rail infrastructure managers and maintainers to provide



generators, distribution equipment and warning systems designed to make life easier and safer for the user to promote availability of the route and associated assets. With 93% of Network Rails infrastructure fleet carrying HGI power on board which is currently powering a £38 billion programme of upgrades to the network.

- BSDG black start The process of restoring an electric power station or a part of an electric grid to operation without relying on the external transmission network. During a wide-area outage, off-site power supply from the grid will not be available. In the absence of grid power, a HGI BSDG set is used to bootstrap the power grid into operation. The sets are used to start larger generators (of several megawatts capacity), which in turn are used to start the main power station generators.



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Stand No **S8-202**



MAS Zengrange provides Maritime Remote Initiation Capability

MAS Zengrange is one of the principle leaders in the global market for the design, development, manufacture and supply of Remote Initiation equipment to specialists that require the very best, battle proven capability.

MAS Zengrange Remote Initiation Systems support Defence and Government Organisations within 5 - EYES, ABCANZ, NATO alliances and over 30 countries across the tri-service spectrum of explosive demolition operations.

Typical customers and applications include Special Forces, EOD, IEDD, Combat Engineer, Infantry Assault, Maritime demolitions including VSW, Combat demolitions, Route proving & clearance, Countermine/Area Clearance, Disposal, Training and Battlefield Simulation.

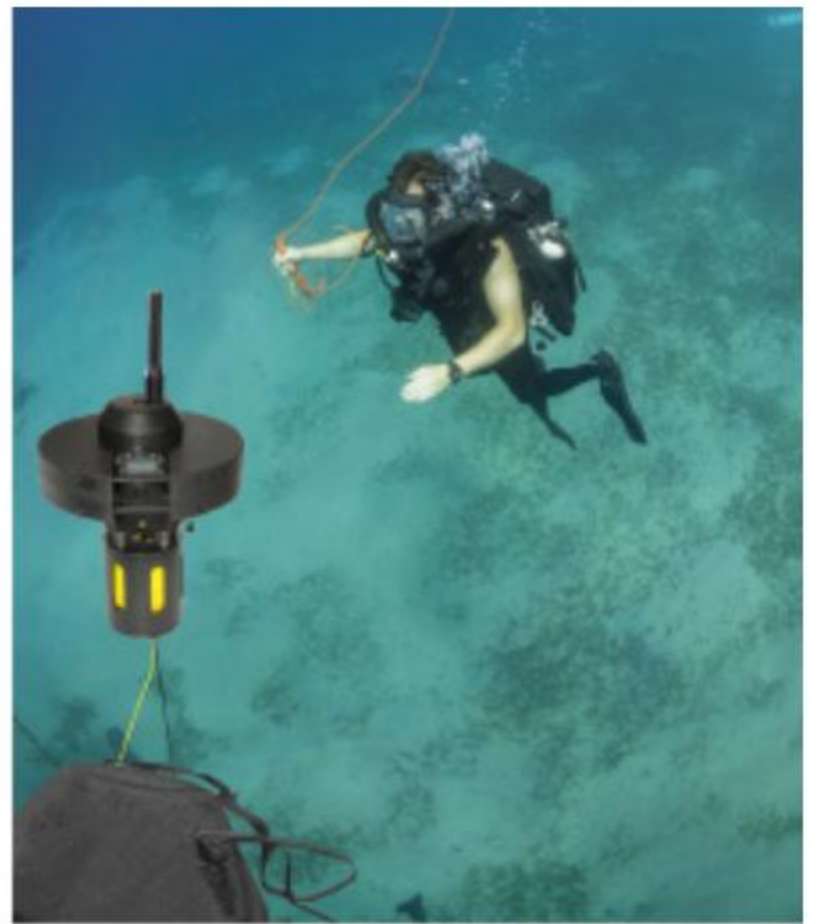
The POP π M4.0 Mini-DRFD Float System is a long-range UHF radio controlled Remote Initiation (RI) system, designed to initiate explosives and munitions in a variety of environments and operational scenarios. It uses reusable (RRx) or expendable receivers (STIX) capable of electric or non-electric initiation in both remote or timed initiation modes.

The POP π M4.0 Mini-DRFD Float System capability provides users with enhanced flexibility when conducting explosive events above or below the waterline. Sub-surface deployments can be executed by diver or Remote Operated Vehicle (ROV), reducing the risk to operators. The stand-off capability also supports safety when dealing with high threat or unstable targets. The transmitter has a dynamic ability to initiate one receiver or simultaneously initiate multiple or groups of receivers at any given time, which provides the user complete flexibility and control in the planning, preparation and execution of multiple explosive tasks.

Operational flexibility is achieved through the ability to bond receivers to any transmitter allowing the redistribution of receivers supporting dynamic and agile operations.

Applications of the Mini-DRFD POP π M4.0 capability in the maritime zone are many, including salvage operations, debris removal, clearance of hazards to shipping (route clearance), force protection, Mine Countermeasures (MCM), Explosive Ordnance Disposal (EOD) and amphibious operations support.

The fundamental strength of the Mini-DRFD POP π M4.0 capability is that it fills a thoroughly researched need. Through stakeholder and customer engagement and analysis into emerging trends, the POP π M4.0 System has been developed and desinged to meet an immediate need within the maritime domain. A global snapshot provides significant evidence of the challenges in the maritime domain, and that's where MAS Zengrange sees its capability development path currently. Increased instability, such as that currently being witnessed in the South China Sea as well as generic challenges by an expanding spectrum of actors, including nation states, terrorists, transnational criminals and pirates, may result in potential conflict surrounding control, influence and access to sea lines of communication. In conflict scenarios, actors may seek to harass, disrupt, or prevent maritime activity through the use of undersea obstacles and mines including IEDs, small boats, and swarming tactics. Capabilities such as the Mini-DRFD POP π M4.0 may become part of the maritime capability set available to militaries to mitigate these threats, and support maritime tasks such as MCM, mobility, freedom of navigation, humanitarian and disaster relief, counterpiracy, and coastal patrol activities. **Further information at www.maszengrange.com**




Above: POP π M4.0 Mini-DRFD Float with Mini-DRFD Transmitter

Left: POP π M4.0 Mini-DRFD Float System, showing Mini-DRFD Transmitter, Float System & STIX Expendable Shock Tube Receivers



Deployable lightning protection solutions



Brugg Cables is the owner of a patent for a deployable, compact and low-volume lightning protection system. It is optimized for rapid deployment in the field. If you operate an installation out in the field, you're responsible for the safety of all your personnel in the event of a thunderstorm with lightning strikes. Due to the lack of an appropriate solution, this fact is typically ignored. Deposits of material in outdoor environments also entail the inherent danger of damage from a lightning strike. Finally, there's an answer: Brugg Cables is offering an effective and very cost-efficient solution for both human safety and equipment protection.

Typical applications and methods

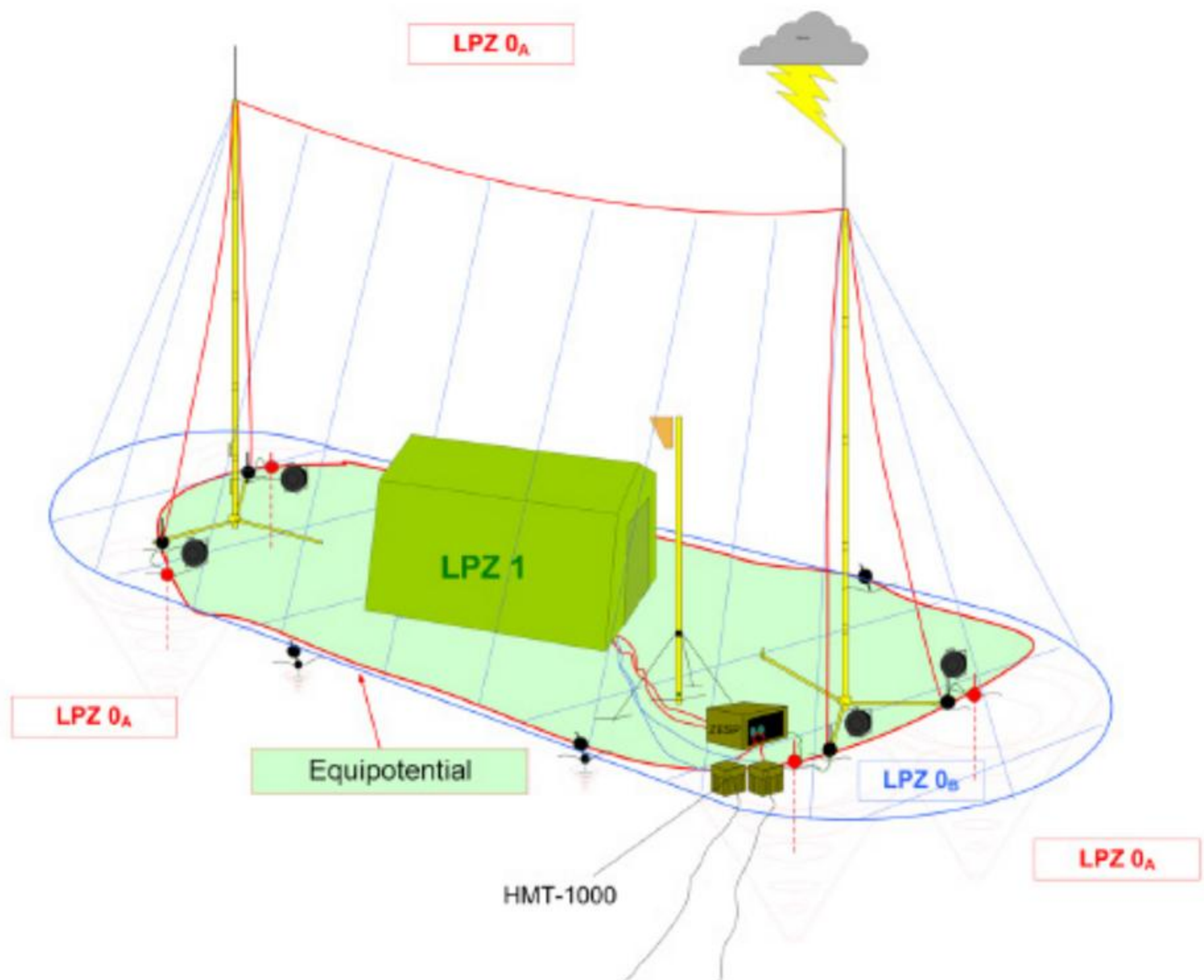
Deployable lightning protection is used e.g. for military camps, command posts, depots, storage and antenna sites. Further applications are outdoor events (sports, concerts, theaters, big-screen open-air broadcasts, cinemas etc.)

To protect personal and equipment lightning catchers protect against direct strike, the equipotential zone protects against step voltage and various types of surge protectors prevent the penetration of dangerous overvoltage along the conductive field cables into the protected zone. All of these LEMP protection methods

can be combined to dramatically improve safety and prevent damage to equipment.

Installation of rods and cables for the catcher:

Depending on the size of the area, a defined number of rods are installed and connected by a catcher cable between the rods. For a single object like a tent, two rods and one cable are sufficient. For a larger area, a system of rods and cables is built in a network over the area to catch the lightning. The height of the rods and the distance between the rods and cables are important factors in effective protection.



Installation of the grounding and equipotential island

Step voltage is the voltage between the legs of a person or animal standing near an energized grounded object. It depends on the distance between the legs and the distance to the place where the lightning struck. Step voltage can be eliminated by installing a proper grounding ring around the area. This is created using a grounding cable to form the ring and a number of grounding poles.

Entry of conductive cables into the protected area

All the conductive cables leading from outside into the protected area need to be filtered by surge-protection devices using the centralized entry point (ZESP). This includes power, data, telephone and radio cables.

Coordination and dimensioning:

All of these measures must be coordinated and connected in an integrated system. Brugg Cables can offer just the right setup for your installation.

Environmental conditions:

The standard operating temperature range is -20° Celsius to +49° Celsius. Extended operating temperature range can be achieved by the selection of the components.

Advantages of the Brugg lightning protection system:

The Brugg Cables solution for deployable lightning protection is optimized to be easily transportable, with low space consumption and low weight, easy and rapid deployment, ergonomic handling, is modular and scalable and adapts to the size of the protected area. Surge protectors against overvoltage are available for many types of signals. Training is offered on-site or at Brugg.

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Intrusion detection perimeter control

Brugg Cables fiber-optic sensor cables are optimized to measure physical parameters like temperature, strain, and acoustic/vibration signals. The information gathered from these sensors for security applications is extremely useful and numerous. Most attempts at third-party intrusion can be discovered, alerted and localized precisely. Compared with conventional solutions, these sensors are perfectly adapted for deployment along extended structures, perimeters or borders of up to 50 km per monitoring system with little installation effort and material expenditure.



Typical applications and methods

Intrusion detection and perimeter control (including structural health monitoring) is used for e.g. airports/airfields, military camps, fuel depots, nuclear power plants, critical industrial plants and border control. For fiber-optic sensing the methods are DTS (distributed temperature sensing), DSS (distributed strain sensing), DAS (distributed acoustic sensing) and DVS (distributed vibration sensing). DAS and DVS are similar and the same equipment can be used for both. All of these fiber-optic sensing systems can be combined to dramatically improve safety and reduce the number of false alarms.

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Solutions at the perimeter:

The DSS (distributed strain sensing) monitors fence systems using built-in metallic FO strain sensor elements to detect demolition, removal of fence components, deformation or movement. The DAS (distributed acoustic sensing) detects hostile human or machinery approaches including people walking or crawling, vehicles, digging work, or excavation of tunnels by monitoring acoustic signals and vibrations along borders and perimeters and surveilling the environment in front of or between fences

At the structure (structural health monitoring):

In many case, it is not sufficient to detect and alert damage and intrusion at the perimeter, it is essential also to detect damage at the critical infrastructure itself. This might be DTS (distributed temperature sensing) to detect leaks in a pipeline or in a dam, it might be DSS (distributed strain sensing) to detect cracks, holes, destruction of the structure, and landslides or DAS (distributed acoustic sensing) that detects leaks, tapping, slugging, cutting digging, excavating, creating caverns, explosions...All these effects might be caused by intruders or might have other reasons, however in many case such events have to be alerted.

Subsea: (Monitors intrusion and structural integrity)

Similar solutions based on DAS, DSS, or even DTS can be implemented in subsea environments and structures. The sensor cables are waterproof and in most cases the interrogation unit can be placed on shore.

Environmental conditions:

The solutions can be made for extended temperature range. For the cable the standard is -50°C up to 85°C.

Other operating temperature can be achieved by the special design of the cable and by the design of the optical fiber. The operating temperature can be extended e.g. down to -180°C or up to 300°C. The mechanical characteristics are adapted to the application by the design of the cable to increase the sensitivity or to increase the tensile strength and the crush resistance of the cable. The correct selection of the cable type is depending on the environmental conditions and the method of the installation.

Advantages of the fiber-optic sensing solutions:

Compared with point sensors there are no electronics at the sensor location, there is extended operating temperature range, easy installation/low maintenance, long range up to 50 km, high reliability and stability, immunity to EMI, no detectability and no power supply needed at the sensor because it is a fully passive sensor. The distributed sensors provide complete coverage at their entire length, at each spot of the cable and monitors in real time

Compared to standard fiber optics for telecoms, the cable design is optimized for high sensitivity and fast response, the cable characteristics and functionality is verified by special test procedures, the sensitivity is optimized to specific physical parameters and is part of the quality monitoring.

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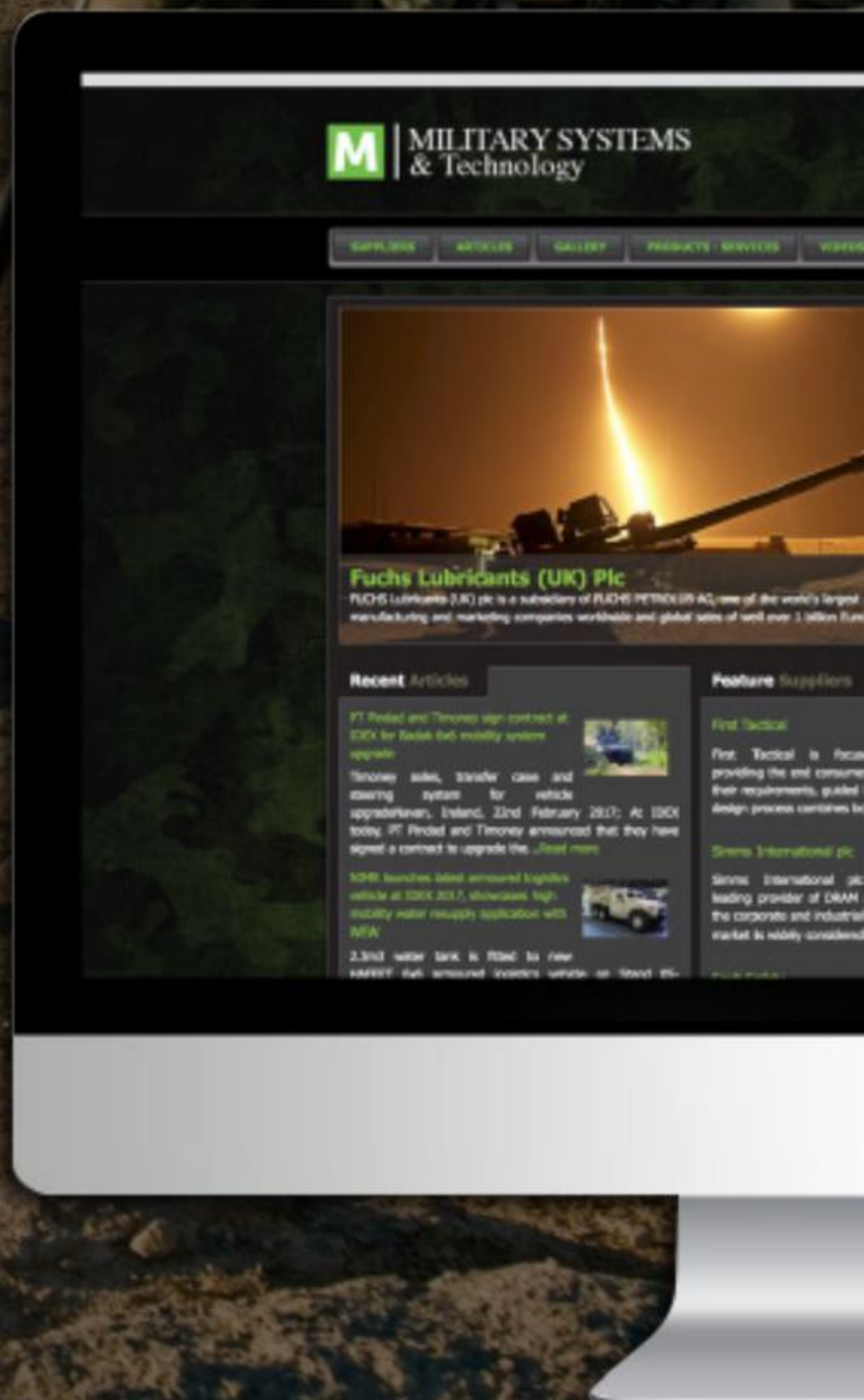
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