

# MILITARY SYSTEMS

E T E C H N O L O G Y

## EXPLOTRAIN

Patented technologies and state of the art simulation capabilities provide top level ied/eod training

## OWR

Manufacturers of outstanding decontamination equipment

## SCHROTH SAFETY PRODUCTS

Customized occupant protection solutions in military vehicles

## CQC

Design & manufacture of body armour & Integrated Soldier Systems

## SPINNER

Hybrid Rotary Joints for Radar Applications

PLUS...

BREAKING NEWS FROM...

MOLECULAR  
UTILITY FLAME  
WEW  
XPLORE

Image Courtesy of CQC Ltd

**OUR FOUNDATIONS IS OUR  
TECHNOLOGIES, OUR MISSION IS  
EXPANDING YOUR CAPABILITIES.**



Scott Safety are world leaders in the design and development of Respiratory Protection Equipment (RPE). We have a detailed understanding of the physiological and psychological burden RPE can place on users. That is why we test in the field. We apply what we learn there - as well as emerging research and technologies to every design to ensure superior capability, functionality and comfort. Irrespective of whether your requirement is for CBRN protection, Breathing Apparatus for EOD, USAR, Damage Control, Law Enforcement, Fire Fighting or for specialist applications Scott can meet your requirements- Comfortably

**SCOTT**  
SAFETY

**LET'S WORK.** TO LEARN MORE VISIT: [SCOTTSAFETY.COM](http://SCOTTSAFETY.COM)



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

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

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# GREEN COMPACT DIESEL GENERATORS & AUXILIARY POWER UNITS FOR MILITARY APPLICATIONS

The Dewey Electronics Corporation, a publicly traded small business concern (DEWY) located in Oakland, NJ, has been at the forefront of providing a greener power source for military applications. As a leader in the design and manufacture of compact diesel powered portable generator sets and Auxiliary Power Units (APUs), we have addressed the needs of the military to get more power with less fuel. The development of our DC hybrid generators and power systems has resulted in significant fuel savings (50%-70%) and reduced yearly logistic costs (200% or more) when compared to standard generators.



These hybrid systems complement our 2kW Military Tactical Generator (MTG) family that is the PM-Mobile Electric Power (MEP) type certified standard for U.S. Military use. Dewey has also expanded its APU family with the recent acquisition of the Goodman Ball, Inc. product line. The addition of the GBI products to the existing Dewey developed APUs now provides a power range from 2kW to 20kW to support vehicle silent watch needs. Dewey also provides a range of support products for our 2kW MTGs including electronic control remote fueling pump kits and NATO adapters. We also provide various advanced development control systems for diesel reformer fuel cell systems, DC/DC power converters, and now large scale energy storage containers for micro-grid systems.

## DC Hybrid Power Systems

Over the past five years Dewey's DC Battery Charging Generators (BAPUs) have evolved into DC hybrid power systems. We have developed a digital generator controller that incorporates battery monitoring/battery charging features



along with auto start and auto stop controls that greatly enhance fuel savings and lowers yearly life cycle costs to the end users. Our enclosed 2kW hybrid generator is designed for trailer or vehicle mounting and charges lead acid, AGM, and Lithium Ion batteries. The open frame version is also available in power that ranges from 2kW to 4kW and has found applications in trailer and containerized systems by various defense manufacturers.

The enclosed 2kW 28V DC hybrid power system is an ideal auxiliary power unit. Designed to mount on a standard HMMWV towable trailer it is tactical quiet in operation. Typical applications include persistence surveillance

and communications & relay trailers, along with integration as backup power sources for renewable energy systems.

The DC hybrid generator can be combined with solar systems to provide backup power in the event that solar is not available. Dewey's generators have been paired in demonstrations with numerous solar systems such as the USMC GREENS, Sun Spider, and other defense contractors' systems in locations worldwide to provide power when the sun is not available. Expanded Military Auxiliary Power (APU) Product Line

Dewey now manufactures the 5kW APU for the M577 Armored Personnel Carrier and the M1068 Tracker Carriers. The MEP-952B (NSN 6115-01-425-6513) has over 3,000 units in the field. The armor plated APU generates a maximum output of 6kW of clean 28 Volt DC power. A highly reliable combination of two outstanding components, the Farymann 43F engine and a C.E. Niehoff alternator are directly coupled without pulleys or belts. The APU is equipped with an electric start or manual hand crank. Starting the APU is accomplished using the standard control panel on the armored housing. An optional remote control panel allows the APU to be started from within the vehicle.

This armored unit complements the air-cooled APU developed by Dewey, the EVPS, and BAPU which are found in the USMC inventory. Additionally, Dewey is developing a 20kW APU for a select military vehicle family.

## Battery Charging Auxiliary Power Unit (BAPU)

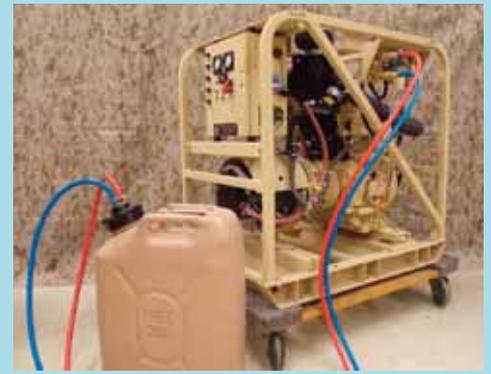
Selected by the USMC, our open frame generator set provides a full 4.5kW military rated 28V DC power supply suitable for vehicle APU use and battery charging under extreme temperatures. The unit features a current limiting programmable voltage regulator, redundant local and remote controls, and a self-bleeding fuel system for vehicle or remote fuel tank interconnections. Based on our 2kW



military heritage, this unit provides a simple power source that is lightweight yet highly reliable and easy to maintain.

## Enclosed Vehicle Power Supply (EVPS)

This APU can be mounted in three positions (top, bottom, and side) for optimum vehicle installations. The enclosed air-cooled generator provides 4.0kW of 28V DC at 70° F and operates from -40° F to 130° F. The APU features a current limiting programmable voltage regulator that can charge various battery chemistries, redundant local and customized remote controls, and a self-bleeding fuel system for vehicle or remote fuel tank interconnections. The engine operates on diesel and JP-8 fuels. This enclosed unit has a noise signature of less than 70dBA at 7 meters.



logistically supported generators in the DoD inventory, complete with full technical manuals, training, and train the trainer support. These highly reliable units meet all Human Factor requirements and have an acoustic noise signature of 79dBA at 23 ft.

Accessories for the MTGs include the Electronic Control Remote Fueling Kit, a self-contained system that when installed on the MTG, activates when the fuel tank is 1/8 filled and pumps fuel from an auxiliary fuel can or other supply container to refill the fuel tank automatically. The leak-free design is equipped with anti-siphon check valves and auto shut off to prevent spills and fault, run, and power indication lights.

## 2kW Military Tactical Generator Sets (MTG)

The PM-MEP type certified MEP 95-501A (28V DC) and MEP 95-531A (120V AC) have been the standard man-portable generators for the U.S. DoD. Dewey has fielded almost 20,000 of these units since 1996. These units operate on diesel 1, 2, or JP-8 fuels. The MEP 95-501A (NSN 6115-01-435-1567) provides 2kW of 28V DC power. It weighs 148 pounds with four hours of fuel. Man-portable 120V AC power is provided by the MEP 95-531A (NSN 6115-01-435-1565). This unit weighs 153 pounds and provides power for four continuous hours before requiring refueling. With full rated operation within the temperature range of -25° F to 120° F, the MTGs are the lightest type of classified, fully

The NATO Adapter is a recent addition to the 2kW MTG accessory product line. It attaches to the MEP-501A MTG to provide a receptacle for the NATO plug. This adapter is available in a single or dual configuration. We have developed automatic load banks that monitor and automatically switch loads on and off the MTGs to prevent "wet stacking".



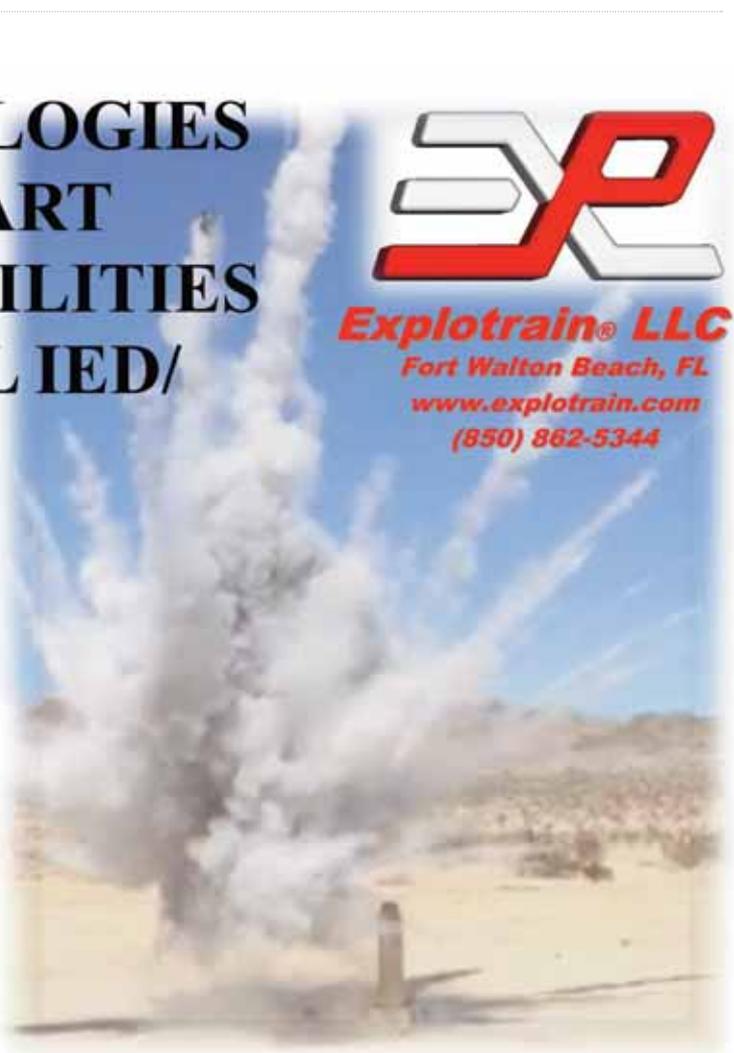
# PATENTED TECHNOLOGIES AND STATE OF THE ART SIMULATION CAPABILITIES PROVIDE TOP LEVEL IED/ EOD TRAINING



**Explotrain® LLC**  
Fort Walton Beach, FL  
[www.explotrain.com](http://www.explotrain.com)  
(850) 862-5344

Recent conflicts and civil unrest across the globe have revealed the IED as the weapon of choice in asymmetric conflicts. As new battlefields and tactics constantly emerge and evolve, these improvised weapons have secured a place at or near the top of the list of threats our soldiers and even civilian first responders will face. More importantly, as budgets and resources are shrinking, the technological capabilities of detecting and defeating these weapons are becoming less available to the troops on the ground. Recent studies show that approximately three out of four IEDs are detected by soldiers or personnel with a mission other than searching for IEDs. This, "Every soldier is a sensor" state of affairs illustrates the need for advanced training of everyone who will directly face this threat, both in detection as well as reaction to an attack should these detection efforts fail.

Since 1998, a small business in Florida, Explotrain LLC, has invented, developed and manufactured much of the advanced training and simulation technology used in response to the growing threat of IEDs. Beginning with propane/oxygen powered Simulators to act as penalty charges for NAVSCOLEOD at Eglin AFB in Florida, Explotrain invented a novel method of training by interfacing these Simulators with the simulated explosive devices and sensors typically used in advanced EOD training. This technology was awarded a US Patent in 2003 and has been the back bone of much of Explotrain's expanding product line and capabilities ever since.



Hand entry and even disruptor charge methods of disabling a device can now be safely taught, practiced and evaluated. Simulated IEDs that exactly mimic the real world threat can be used in scenarios. No longer must buzzers, lights, wires or bulky transmitters be hidden or labeled "out of play" by an instructor. Readymade devices accurately duplicating real world IED threats are available with circuitry included that incorporates the X-CAP. These IFIEDs (Inert Functional IEDs) provide trainers and instructors with "out of the box" training aids that are the most realistic and technically accurate devices available or possible.

Equally as important, these devices can be readily made to precisely mimic real world threats as they emerge. This capability allows instructors to train their students with simulations of an evolving threat in near real time. Explotrain's X-CAP and IFIED Systems can be used either as a standalone addition to EOD/IED circuits utilizing a built in electronic audible penalty effect or plugged into any of the advanced Effects Simulators for higher levels of realism and simulation.

**Close up view of  
IFIED circuitry with  
embedded X-CAP and  
simulated explosives**



**X-CAP Transmitter**

**X-CAP™ Blasting Cap Transmitter and IFIED™ Systems-** Initially, EOD training involved basic circuit instruction and a buzzer or light wired into a simulated explosive device as a penalty effect to indicate an actual device would have detonated in a real world scenario. Explotrain's Simulator Systems provided a higher level of realism to this method by incorporating

an Explosive Blast Simulator as the penalty effect along with other improvements.

Now, the X-CAP Transmitter takes this realism to its most advanced level yet. The X-CAP resembles a standard blasting cap in both size and appearance, but more importantly performs the same electronically. Instructors now have the capability to safely use real world circuits, devices and sensors merely by substituting the X-CAP for the original blasting cap. The end result is a device exactly the same as a real world threat except for that single component. This hyper-realism of simulated devices dramatically improves the level of classroom instruction and training troops can receive.

## X-0 Series™ Blast Simulators

EOD, IED and combat training all require the realistic and safe simulation of explosive blasts. Explotrain's X-0 Series of Explosive Blast Simulators provide an unparalleled capability of providing just that for the widest range of training scenarios. From the 17" tall X-OHW to the waterproof and concealable X-05 all the way up to the world's largest Blast Simulator, the X-OMG, these devices create the desired explosive effects for any situation.

Utilizing a computer controlled mixture of oxygen and propane gas ignited within an open cylinder, the X-0 Simulators create an extremely realistic blast effect that is still safe to use in close proximity to trainees and instructors. These blast effects have been measured for both decibel level and blast overpressure allowing complete compliance with all safety regulations and concerns. This level of safety and realism, coupled with their reliability and ease of use, have made hundreds of X-0 Simulators the preferred choice for US Law Enforcement, Army, Navy, Air Force, Marine and elite Special Forces training units as well as multiple international sites.

Explotrain produces eight different models of X-0 Simulator to allow instructors to easily simulate indoor explosions in a MOUT village, RPG strikes against a vehicle, submerged charges for patrols through a swamp, or blasts large enough for attacks against tanks or armored vehicles. Every X-0 Simulator can be used with the X-CAP and IFIED devices for hyper realistic training or controlled wirelessly from a hand held transmitter. These wireless options include transmitter models that can control 10 Simulators at a range of 600m or more which allow a single operator to control an entire range from just one location.



**Waterproof X-05**

## XP-360 Pneumatic Shockwave Device-

To complement the X-0 Series of Simulators, Explotrain has introduced a compact pneumatic device ideally suited for use indoors, in vehicles or in close proximity to personnel. The XP-

360™ Pneumatic Shockwave Device produces a tuned Shockwave and Blast Effect over 100dB using compressed air or CO2 charges of 100–150 PSI. Unlike traditional pneumatic or CO2 powered devices that rely on bursting discs or containers, the XP Series produces a tuned shockwave effect with no fragmentation hazard. Rapid repeat firings are possible with no need to "reload" the XP-360, as it can be refilled and refired in a matter of seconds. Additionally, the PULSE shockwave effect creates a unique tactile impulse or impact to create additional levels of training as students are hit by the shockwave.

The XP's small size, roughly the same as a 1 liter water bottle, allows it to be concealed almost anywhere: under a workbench in an HME lab, beneath the seat of a vehicle, or even inside simulated IEDs themselves such as a pipe bomb, artillery shell housing, or fuel jug.

## X-CAL™ Machine Gun Simulator-



Explotrain's battlefield effects also include the most technologically advanced machine gun simulator available. The X-Calibre model features interchangeable barrels and user adjustable fire rates to quickly and easily simulate automatic or single shot sniper fire ranging from the sharp cracks of 5.56mm, 7.62mm to the deep throated sound of .50 caliber weapons.

In addition to this capability, the X-CAL is completely self contained, allowing an individual to rapidly transport and reposition it before or even during a training scenario. Unlike other machine gun simulators, the X-CAL's exclusive Cold-Fire technology eliminates the need to constantly adjust pressure settings due to changes in operating temperature during a scenario. Performance testing involved dropping the gas supply temperatures over 60°F with no adjustments of regulators or settings. Despite these conditions the X-CAL continued to operate with zero misfires. This 100% operability is essential in the modern training environment where every instructor's time must be spent with students rather than adjusting or setting up equipment.

The X-CAL is also operated by the same transmitters used to wirelessly control the X-0 Simulators to allow the greatest flexibility in operating complete battlefield effects for training scenarios.

## Seamless Integration of Training Tools from Classroom Instruction to Indoor, Urban and Field Level Training Environments-

Explotrain's complete line of training tools and patented technologies are the only integrated system available that allow for the same devices to be used for instruction in a classroom one day and integrated with realistic effects later in the course during a field training exercise. This unique capability provides for more consistent instruction for the students as they can more readily apply the lessons they learned in the classroom to training exercises in the field. This consistency also benefits the instructors since they can spend more time on their primary objective of instructing rather than spending that effort on changing from one type of training tool to another.



Explotrain products are made in the USA and have an ITAR classification code clearing them for export. Further information on performance, operations and purchasing can be

found at [www.explotrain.com](http://www.explotrain.com) or contacting Explotrain directly through [information@explotrain](mailto:information@explotrain) or (850) 862-5344.

# MANUFACTURERS OF OUTSTANDING DECONTAMINATION EQUIPMENT



As a manufacturer of decontamination equipment, OWR has been setting the standards for CBRN defence and civil protection for more than 50 years. Using modern techniques and user-friendly application systems, OWR develops and builds efficient mobile decontamination solutions for its customers, offering them a complete service from product development to training and after sales service. With a full range of products ranging from small hand-held spray applicators such as the Cobra, to the containerised multi purpose

decontamination systems such as the MPD 100i, OWR can offer a solution to fit the needs of the customer, and with a design team constantly developing new and innovative products, OWR is setting the standards for the future of decontamination and helping to provide a safer and more certain future for the world.

## Compact Decontamination Equipment COBRA Decontamination Spray Unit

The COBRA is a 0.4 ltrs decontamination spray unit used for emergency decontamination or disinfection. Giving a spray area of approximately 11m<sup>2</sup>, the COBRA can be filled with any liquid decontamination or disinfection solution and has been developed in close cooperation with both military and civil customers as part of their personal protective equipment for CBRN operations. The hand held unit contains a patented pressure pump system with

which the operator can quickly create a pressure to allow the liquid to be sprayed. The COBRA has a metal stainless steel body and chemical resistant seals and requires no special preparation before use. The COBRA comes either as a stand alone unit supplied with a carrying bag which clips to a belt, or can be incorporated into kit supplied in a robust plastic carry case. Light, Transportable Thermal Fogging System - DECOFOG

The Decofog is a light, transportable thermal fogging system designed to apply decontamination solutions as a fog. It is simple to use, has no mechanical parts and can be set up for use in seconds. Based on "jet-engine technology" it uses hot air to vaporise a solution and turn it into a fog with particles of 1 to 4 microns. The Decofog is robust and been designed to be operator friendly with large grip handles. It is supplied standard with an operators harness and metal travel case. Using chemically resistant parts it is suitable for use with aggressive chemicals and needs little maintenance. The Decofog is used by multiple NATO countries and has the NATO Stock Number NSN 4230-01-499-5612.



## Decontamination and Disinfection Fogging Device - FOGBOOSTER

The FOGBOOSTER is the new generation of decontamination and disinfection fogging devices. By using compressed air combined with an especially designed nozzle, decontamination or disinfection fluid is microscopically atomized to form particles on a micro-scale basis to produce a highly effective dry mist or fog. The FOGBOOSTER produces a micro-film mist which covers all surfaces and gets into all gaps and joints, detoxifying or decontaminating all surfaces. The Fogbooster is lightweight (approx 6 kg) quiet and highly mobile and can either use standard compressed air bottles or a compressor to run.

## Fast Response Mobile Decontamination System - SMGD RACCOON

The SMGD has been designed as a fast response mobile decontamination system. Completely self contained with its own generator, diesel and decontamination solution tanks, it is a compact decontamination unit for the application of water-free decontaminants when decontaminating vehicles, large equipment, infrastructure, roads and high-value equipment. The system is based on a low pressure spraying system and comes complete with decon spray lances and an independent high pressure cleaning unit for pre-cleaning.

The generator of the SMGD creates enough power to run the decontamination system and provide external power for the independent sprayer and lights. Designed to be transported to the decontamination site on a pick-up, once un-loaded it can be easily moved easily by one person whilst



still running. The unit is ready to use within 1 minute and needs only to be switched on. Multi Purpose Decontamination System - DEDAS

The DEDAS is a universal mixing unit which can be programmed to mix all commercially known decontamination solutions. The patented low-pressure system allows the mixing of emulsions, foam and diluted solutions for decontamination purposes, in either small or large quantities. It has a capacity of up to 200l/min and can even be used with seawater. The DEDAS can be used as a stand-alone unit but is used as the heart of the OWR MPD 100 multi purpose decontamination system.

## SURF-EX Decontamination Unit

The SURF-Ex is a decontamination unit which uses industrial vacuuming technology combined with a spray-extraction system to clean and decontaminate surfaces of CBRN, HazMat and explosive material. The SURF-Ex can be used to vacuum all types of dry hazardous dust without danger to the operator due to its comprehensive filtering and dust collection system. Its can also be used to clear up liquids and uses a spray-extraction system to decontaminate and clean surfaces of hazardous and dangerous chemicals. By using GD-6 with the spray extraction system, the surfaces of sensitive equipment can be decontaminated without risk. Using comprehensive selection of inter-changeable vacuuming and spray heads ensures that the SURF-EX can be used to tackle multiple decontamination tasks.

The SURF-EX was successfully

demonstrated in Fukushima, Japan and was successfully used to clean vehicles, equipment and external surfaces of radiation.

## Multi Purpose Decontamination Units - MPD

The Multi Purpose Decontamination Unit or MPD is a complete decontamination system Contained in a 20ft ISO container a standard unit can decontaminate 120 persons per hour, 20 light vehicles per hour, or 6000m<sup>2</sup> of terrain decontamination. Despite its large capacity, the MPD100 is a highly mobile unit containing 3000 ltrs of water and can be operated using 4 personnel.

**The MPD 100** has recently been upgraded to include the UAM (Universal Application Module). The MPD 100i can apply ready mixed decontamination solution using low pressure technology and offers an enhanced decontamination capacity.

### GD-6

The decontamination solution GD-6 is a ready to use patented decontamination solution which is used to decontaminate chemical warfare agents. It is especially effective when used with OWR low pressure application technology, but can be used with any spray unit and fogging units.



**SCHROTH®**  
Safety through Technology

# CUSTOMIZED OCCUPANT PROTECTION SOLUTIONS IN MILITARY VEHICLES,

SCHROTH Safety Products provides customized solutions for occupant protection in military ground vehicles, airplanes and helicopters of all varieties as well as motorsport and OEM automotive applications. With over 60 years' experience in occupant protection, SCHROTH is one of the recognized leaders in seatbelt and seating products for military applications.

Modern safety systems require integration across complex platforms, which often call for customized solutions. Throughout the product lifecycle, from R&D through to prototype construction right up to series production, we control all processes according to state-of-the-art technology and carry out intensive testing and crash simulations for quality assurance purposes in coordination with the customer's requirements.

## SCHROTH Specializes in:

### Seat Belt and Harness Systems

SCHROTH Military Harness Systems have been designed to meet or exceed the user requirements of the UK, US and European Militaries. SCHROTH Military Harness Systems are designed to be easy to use, with consistent configurations and features that provides maximum protection, rapid entry and egress, adjustability and comfort for a wide range of occupants while seated in forward, rearward or side facing seated positions.

SCHROTH has accumulated a wide range of hardware and restraint solutions for countless applications meeting world-wide standards and regulations. Regardless of your requirement, SCHROTH can most likely supply your solution.

- **Water Activated Buckles (WAB)**
- **Multi Point Harness Systems for Field Stretchers**
- **Production and Program Management capabilities for Prototypes to Mass Production**

## Seating Systems for Military Ground Vehicles (Mine Blast and Static Utility Systems)

SCHROTH's lightweight utility troop seat systems offer an ITAR-Free, COTS (commercial off the shelf), low-profile, space-saving solution for a wide variety of vehicle installations. The mine blast and utility seating comes complete





with an integrated ECE/FMVSS compliant lightweight 4-point harness restraint.

SCHROTH seating offers the ideal systems for commercial and military personnel and troop transport configurations.

#### Applications:

- Military, civil (police, border patrol, peacekeeping, disaster relief) and commercial

## Gunner Restraints / Top Cover Harnesses / Standing Positions

SCHROTH has multiple designs to meet various vehicle applications.

SCHROTH's Gunner Restraint Systems (GRS) have been fitted to over 160,000 vehicles for operations in Iraq, Afghanistan and other trouble spots world-wide.

## Inflatable / Military Airbag Technology

SCHROTH has developed and delivered four-point restraints with integrated airbag systems for 125 German Boxer Armored Personnel Carrier (APC) vehicles.

The SCHROTH inflatable restraint system offers numerous innovative features including shoulder harnesses fitted with belt-integrated airbags.

In the event of a crash, sensors measure the resulting acceleration and trigger the gas generators that produce micro pyrotechnical charges allowing the airbags to be deployed within a fraction of a second.

Although airbags have been in commercial vehicles for years, there are very few applications of airbag technology for a production ground vehicle developed specifically for military applications.

This inflatable restraint brings state-of-the-art protection by integrating the airbag into the shoulder harness and providing protection for side-facing occupants.

## Soft Ballistic Protection Solutions (Military Vests and Armoring)

SCHROTH ballistic protection provides customized survivability solutions for police forces and military personnel. Designs based on our technical experts' proven ballistic know-how and long-standing experience, SCHROTH body armor increases survivability while our range of carrier systems offers the highest possible level of comfort and wearability. Features of SCHROTH body armor solutions include the most advanced ballistic materials available, innovative technology, high ballistic performance, low surface weight, and innovative comfort features.

SCHROTH body armor is available in a wide variety of soft and hard ballistic configurations and can be customized to meet any ballistic standard or specific requirement.

SCHROTH body armor solutions are designed, developed and manufactured in Germany according to the highest quality standards.

#### STANDARD PROTECTION LEVELS

SCHROTH body armor solutions can be designed to meet the major international

ballistic standards:

- **Germany:** SK1, SK2, SK3, SK4
- **US:** NIJ I, NIJ II-A, NIJ-II, NIJ-III-A, NIJ-III, NIJ IV
- **UK:** HG1/A, HG1, HG2, SG1, RF1
- **Russia:** GOST Class 1, 2, 2a, 3, 4,5, 6

Other international ballistic standards can be met upon request.

All major international standards for stab protection can be met.





# DESIGN & MANUFACTURE OF BODY ARMOUR & INTEGRATED SOLDIER SYSTEMS

CQC have a long and established track record in the design and manufacture of leading load carriage, body armour and Integrated Soldier Systems. For over 60 years we have been at the heart of military personal equipment and at the forefront of new dismounted capability and technology.

## Load Carriage and Military Personal Protection

### Integrating the Soldier Platform

CQC's award winning Osprey body armour system, with its uniquely designed modular



capability allows dismounted troops to tailor its configuration to individual mission specific needs. Osprey is designed to ensure maximum flexibility in the distribution of weight and integration of ballistic protection, without the need to compromise on combat effectiveness.

### Modularity, Survivability and Capability

A lighter weight MOLLE system is a key design feature of CQC's latest systems, further enhancing the modularity and weight reduction of CQC designs. This enables the user to configure their system to their own mission specific needs.

Quick release and bespoke adjustable fixtures are a standard feature of CQC designs. Enhancing user capability with configurable straps, buckles and fixings to accommodate additional load. Extensive Human Factors engineering and research means one size does not have to fit all.

Additional protection can be added and removed as required. Building a scalable system into a more effective protection platform to meet evolving threats.

Further features include the integration of padded hip belts to help users distribute the load across the waist as well as the shoulders, increasing the wearers comfort and effectiveness for prolonged dismounted operations.

Integrating soldier technology further reduces burden and limits "snagging", reducing the soldier burden, while enhancing their overall effectiveness in rapidly changing operational environments.

## Military Load Carriage Vests

The Osprey MK4A is a leading example of modularity and capability, designed to deliver maximum effectiveness in any configuration.

CQC's pouches are designed specifically for their intended equipment no matter how small, or how detailed.

### Endless Combinations

### Increased Flexibility, Modularity, Capability and Reliability

Load carriage is the corner stone of CQC's approach to Soldier Systems. Ensuring the users can operate as effectively as possible without compromising on protection and reliability. CQC's award winning Osprey MK4 system is leading the world in integrated, modular systems. Further innovations incorporating Man Worn Power & Data (MWPD) systems, dismounted technology and specialist textiles and cabling push the capability and the options even further.

## A modular Solution to Carriage and Protection

Since personal protection for soldiers became an urgent requirement in early 2003, CQC have worked closely with partners and the end user community to design, develop and deliver a world-class system. By maintaining our strict quality and design standards and working directly with our end users, Osprey has become an integrated and optimised load carriage and protection system to meet the most demanding requirements, challenges and threats.

With nearly 300,000 systems delivered, Osprey is battle proven in some of the worlds most harsh and hostile environments and has earned a deserved reputation for design, capability and quality.

### Research, Design and Development Creative solutions to meet your requirements

At the centre of our approach to the Soldier Platform is our Research and Development team - one of the most highly regarded teams within the load carriage and Soldier Systems markets. Our experienced R&D team have been designing, prototyping and innovating to meet customers' unique and bespoke requirements for over 40 years.

### Prototyping: Test and Evaluation Samples

Prototypes are built from the same high quality materials as full production systems. This allows end users the ability to thoroughly test each system to its full potential. Our prototype delivery is rapid – measured usually in hours or days, not weeks or months.

R&D continue to deliver world class capability across a wide and diverse range of environments and unique requirements.

The integration of technology and leading edge materials is at the heart of every design.

### Integrating the Soldier of the Future

Dismounted Soldier Technology is a major force



differentiator in today's battlefields. Modern dismounted C4i capability has increased significantly in the last decade enhancing the flexibility and survivability of forces across the world.

These innovations, while adding significantly to DCC forces' effectiveness, have in-turn increased the burden to extreme levels. CQC are leading the way in the integration of existing and new technologies and equipment to enhance capability, while continually striving to reduce burden.

CQC's development of integrated soldier worn systems, supported by a wide range of partners and technology experts are continually reducing the burden and enhancing capability. Innovative Man Worn Power & Data (MWPD) designs continue to push the boundaries of soldier technology, survivability and capability.

## Integrated Soldier Worn Systems

Building the equipment and connectivity of the "Soldier Platform", delivering a more seamless and integrated solution that reduces the burden, maximises the "irreducible minimum" and enhances overall effectiveness.

### Modularity, Capability and Survivability; delivered consistently for over 60 years

Bespoke designs and integrated solutions to meet the most demanding conditions.

### Design and Development

CQC have a long-standing history in the design and manufacture of world class load carriage, body armour and integrated soldier systems.

For over 60 years we have been at the heart of

military personal equipment and are at the forefront of new dismounted capability, technology and survivability.

### Manufacturing

Our ability to manufacture as well as design allows us the flexibility to meet constant changes and new requirements rapidly without compromising on quality. CQC employ the latest capability and technology to ensure our processes stand up to the highest standards and consistently exceed expectations.

Our production team are committed to ensuring that every product, every system and every individual component that leaves our facility is built to the very highest of quality standards.

We are ISO9001 accredited and seek to continuously improve our processes and products.

### Materials

For over 60 years CQC has built a solid reputation for using the very highest specification materials available. As the standards of integrated load carriage and protection systems become ever higher, we continue to push the boundaries of capability and durability across all of our material types. We are committed to continually introduce innovative technologies as they mature.

Striving to continually meet the demands of the end user and the operating environment, CQC have an unwavering commitment to only use the very highest quality of materials, specific to our customer's needs and demands.

CQC are leading the world in the design, development and innovation of new technology and integrated solutions to constantly improve our customers' capability, durability and survivability.



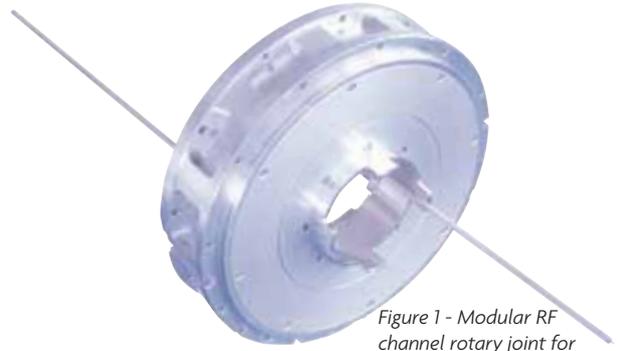
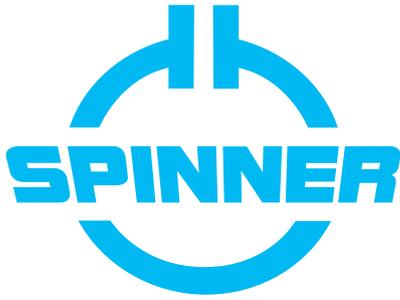


Figure 1 - Modular RF channel rotary joint for L-band secondary radar

# HYBRID ROTARY JOINTS FOR RADAR APPLICATIONS

Surveillance radars employ multichannel rotary joints as transition gears between the transmit/receive equipment and a directional antenna that is rotating around its azimuth. The task of the rotary joint is to enable low-loss transmission channels between stator and rotor for various electrical and optical signals and also for electrical power and media, if necessary.

Transmission channels can be divided into four different types according to their primary function: RF channels (high and low power signals), Power channels (for power supply of electrical equipment), Media channels (cooling media, dry air, etc) and Data channels (optical, Ethernet, RS232, RS422...). SPINNER has built up increasingly complex hybrid rotary joints to serve all those customer requirements. Here, a range of the latest transmission paths that have been developed for radar applications is described.

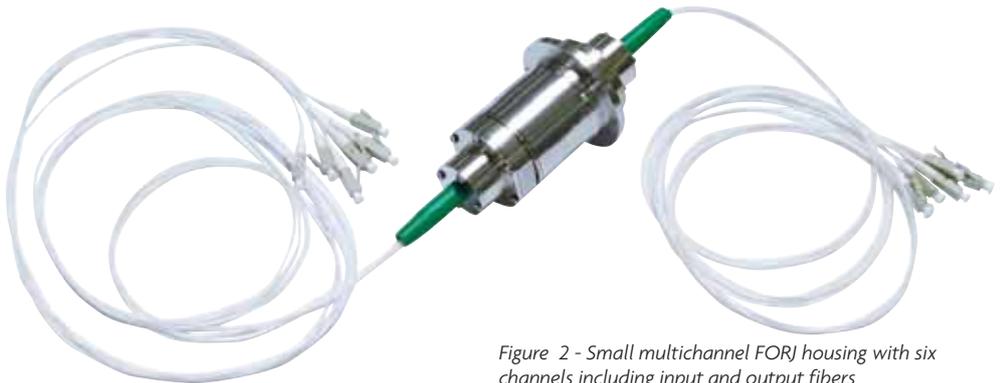


Figure 2 - Small multichannel FORJ housing with six channels including input and output fibers

## DATA CHANNELS

The basic function of a classical low power RF joint is the submission of data which is collected by the antenna. Figure 1 shows an L band medium power channel rotary joint with a relatively large center opening. It has a frequency range of 1.0 to 1.1 GHz, an average power rating of 500 W, typical insertion loss of 0.5 dB and a 70 mm diameter.

A higher data rate can be achieved with a contactless fiber optic rotary joint. Optical rotary joints are available as single mode as well as multi-mode solutions with up to 20 channels. SPINNER's new optical rotary joint family is available with four mechanical housings: A single channel joint, a dual channel joint, a small multichannel housing with space for up to six channels (shown in Figure 2) and a large multichannel housing with up to 20 channels. All optical rotary joints represent a high technical standard with a large temperature range, a high mechanical capability against vibration, shock and bump, as well as very attractive optical parameters.

A newly developed module for contactless bidirectional data transmission with Ethernet interface is shown in Figure 3. The standards it supports are: 10BASE-T, 100BASE-TX, 1000BASE-T; 16 mm diameter). This module automatically recognizes and selects the connected devices' current Ethernet standard and duplex mode



Figure 4 - Multichannel rotary joint

(full or half). All Ethernet modules can be stacked directly and will be attached together to an Ethernet unit which can be implemented into a rotary joint assembly.

## MEDIA ROTARY JOINT

Modern radar antennas generate the RF power directly on the rotating part. This process calls for a cooling liquid which needs to be transmitted up and down. In total three media channels, one dry air and two cooling media are needed for a typical modern rotary joint. The essential technical data is summarized in Table 1.

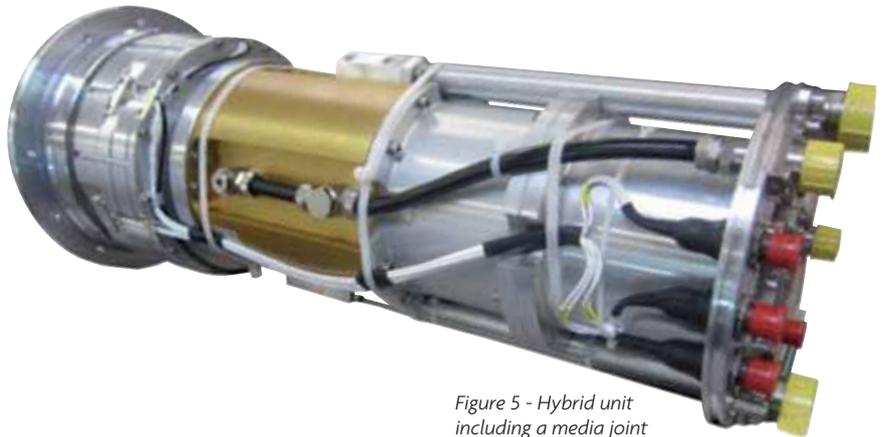


Figure 5 - Hybrid unit including a media joint

	Channel 1	Channel 2 + 3
Medium	Dry air	60% glycols, 40% H2O
System pressure	2.5 kPa	800 kPa
Flow rate	30 l/min	30 l/min
Pressure difference at max. flow rate	1.5 kPa	100 kPa

non-contacting Ethernet transmission, cooling water and air are clearly identifiable. In addition, there is a 20-channel fiber optic multimode rotary joint as well as a 14-bit encoder system inside the hybrid system.

The technical data has been chosen in such a way that they meet the customer requirements for a large number of applications. The module was thoroughly tested in SPINNER's test facility and all data stated could be proven in the tests. When developing the media module, care was taken so that it can also be used in a wide range of other joints. The mechanical flanges allow for virtually any integration into any hybrid joint. In addition to this module, a second module is currently being developed that has an identical technical design, but allows a considerably higher flow rate for cooling water.

In 2013 SPINNER developed and manufactured the first hybrid rotary joint not serving an RF path. The media joint was designed for a customer project, in which a phased array antenna is used. In order to cool the electronic components the supply antenna is supplied with the corresponding coolant.

In Figure 5, the integrated media joint is shown in the assembly process prior to the final completion with the power and signal slip ring module. The elements for the different transmission channels such as the modules of

## SUMMARY

As can be seen the SPINNER portfolio of hybrid rotary joints for radar applications is comprehensive and expansive, meeting all requirements, in any format. The range continues to expand and 2014 will see new products enter the market.

The life time of a rotary joint is normally limited by the mechanical wear of the sliding contacts. In order to reduce maintenance and increase reliability of a rotary joint, it is necessary to reduce the number of sliding contacts. To eliminate wear completely contactless systems need to be used. Contactless systems are available for RF channels (choke systems with limited bandwidth), for data channels (Ethernet and optical joints), for media, and for some power transmission in the range up to 1 kW.

## HYBRID JOINTS

Several rotary joints with multiple transmission paths have been realized. The multichannel rotary joint in Figure 4 is used for a radar employing a passive electronically scanned array (PESA). On the antenna unit, which rotates at a speed of up to 30 rpm, digital interface signals as well as the electrical power supply necessary for feeding active electronics and elevation drives are needed. Four Gigabit-Ethernet channels are realized in a contactless way, whereas the power supply is realized with a classical slip ring module.

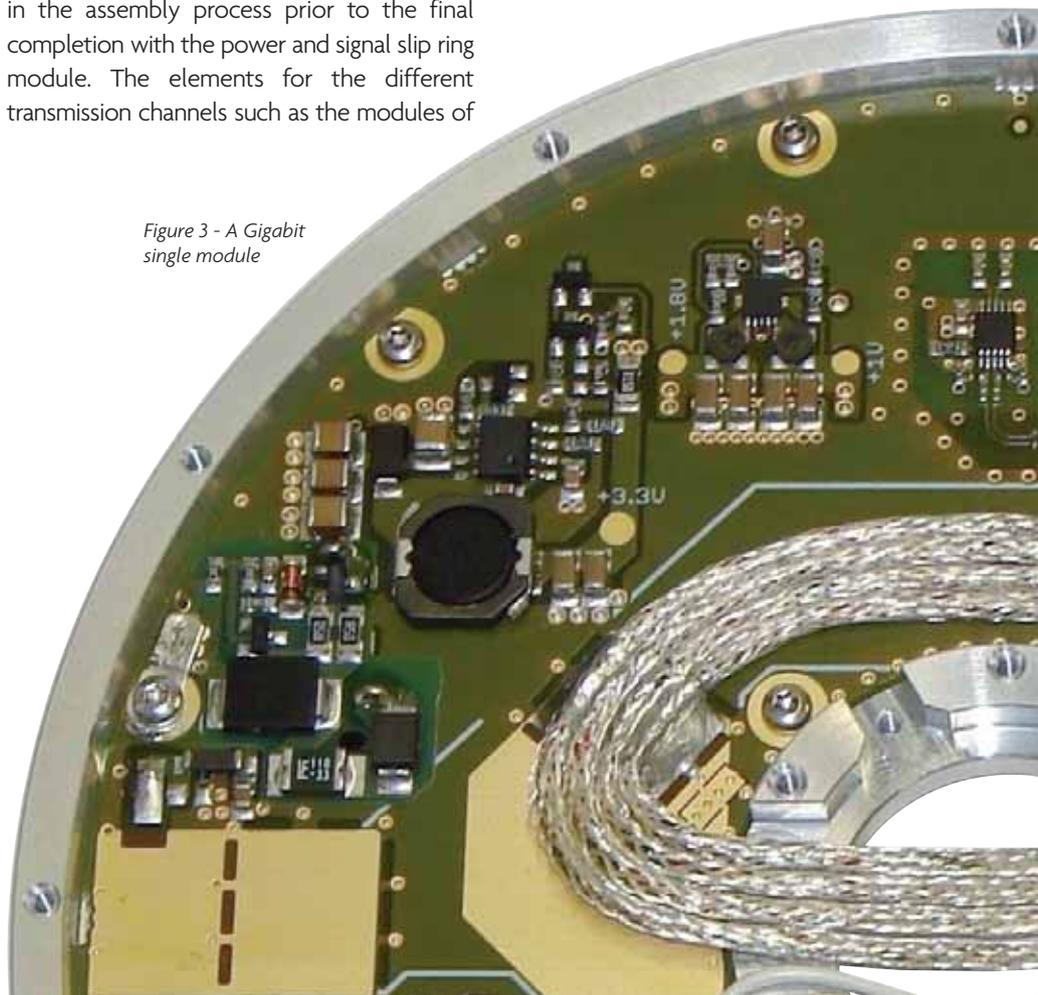


Figure 3 - A Gigabit single module

# Molecular Products Gets FDA Clearance for Innovative Portable Oxygen Generator



Molecular Products, the leading global manufacturer of chemical technology for the purification of air, is pleased to announce that the United States Food and Drug Administration (FDA) has cleared its innovative portable oxygen generator, the ROG (Rugged Oxygen Generator), for over the counter sale.

The ROG delivers a potentially lifesaving supply of pure oxygen in the event of a medical emergency. Safe, easy to use and small enough to carry, the ROG can be administered to aid survivability in the event of a general medical emergency or respiratory distress.

Ian McKernan, CEO at Molecular Products said:

“The ROG is a truly hand held personal oxygen generator and we are delighted to receive 510k clearance for it from the FDA. Getting this groundbreaking product out into the market means

that it can start to be used for the purpose for which it’s intended; helping to save lives.”

Unlike traditional oxygen canisters, the ROG is unpressurised and requires no maintenance.

This innovative development in medical technology needs no mixing, filling or electricity. Started by a simple twist

mechanism, the oxygen flows via standard tubing to the patient.

Rugged in design, the ROG is portable, strong and durable, with an extensive shelf life. Along with general medical emergencies, it is intended for use by special operation forces, search and rescue teams, disaster relief organisations and medevac teams.

For further information visit [www.molecularproducts.com/rog](http://www.molecularproducts.com/rog), email [sales@molprod.com](mailto:sales@molprod.com) or call **01279 445111**.



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In any conflict there is a large amount of Small Arms Ammunition (SAA) issued to the troops on the ground which when unpacked cannot be returned to stock. Other issues such as climate and age render the ammunition unfit for front line use and in some cases unfit for training.

This SAA takes valuable resources and manpower to look after it until it is transported from theatre or destroyed. The TRADS 20 built and supplied by EOD Solutions Ltd and Caldo Engineering would solve these issues and be a cost effective way of destroying SAA as it became available.

Container or Trailer mounted the TRADS 20 which has been proven in Afghanistan can destroy up to one and a half tons per day and will need the minimum of resources as it is completely self contained and meets the EU Waste Incinerator Directive for emissions to atmosphere.

The TRADS 20 is totally self contained and requires only diesel to operate. Lime and Urea is supplied with the system and one 20 foot container can hold enough of these materials to work for up to one year. The trailer mounted version can be pulled to FOB and other outstations and camps so it also reduces the need to transport SAA in theatre. The TRADS 20 is ahead of its rivals as it requires only two personnel to work it with a small number of personnel for unpacking and searching the scrap to ensure all the ammunition is destroyed. The system is currently working in Afghanistan and has proven to have a good reliability and production record. Average cost per day is approximately £200 plus labour. Daily and routine maintenance is elementary and can be undertaken by anyone with a rudimentary knowledge of engineering. Full training and first site commissioning is included in the cost of the system and a company technician will remain for the first two weeks to ensure the personnel who work the system are completely at home with the system.

EOD Solutions Ltd in conjunction with CALDO Engineering have supplied machines to Bosnia, which was funded by the UK MoD, also in Albania, funded by US Dept. of State and now in Afghanistan with the British forces in Camp Bastion. A TRADS 20 is currently working in Camp Leatherneck with a US company and another is currently waiting installation in Bagram.



**EOD Solutions Ltd** | 14 Victoria Road  
Finedon Wellingborough | Northants  
NN9 5JD | United Kingdom

Telephone: +44 (0) 1536 518802  
Email: [info@eodsonline.com](mailto:info@eodsonline.com)

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# UTILITY FLAME<sup>®</sup>

## The hazards of flameless ration heaters.



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

- **Some react vigorously or explosively on contact with water**
- **May be ignited by heat, sparks, or flames**
- **May reignite after fire is extinguished**



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

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



Click Here For Story FRH AS IMPROVISED EXPLOSIVE DEVICES Further, the US Army regards FRH in MREs as a potential weapon and as hazardous waste.

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



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

- **Produces flammable gases on contact with water**
- **May ignite on contact with water or moist air**



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

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

“The Army issues millions of flameless ration heaters (FRHs) every year but concerns arise when unused heaters are disposed of in the regular trash. EPA placed discarded, unused heaters in its reactive hazardous waste category since they contain compounds that heat up when activated by water.” Defense Environmental Quality Program (page 47)

utilize MRE’s must establish procedures to ensure that unused heaters...are not disposed of in the regular trash [but] are collected by supervisory personnel. Collecting and storing unused MRE heaters [with] the...intent...not to...reuse...is a violation of Federal law.”

(Not even the US Air Force will fly with the FRH unless it is double sealed).



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

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

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



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

**International Civil Aviation Organization**

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



**California Dept. of Forestry and Fire Protection**



It is so safe that it is approved for transport on commercial airlines by the United States Transportation Security Agency.

has been evaluated for safety and found to be non-hazardous and safe for transport: “If this material becomes a waste, it would not be a hazardous waste.”



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



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

Additionally, the heat to mass ratio allows the warfighter to carry lesser amounts of fuel than other to complete their mission."



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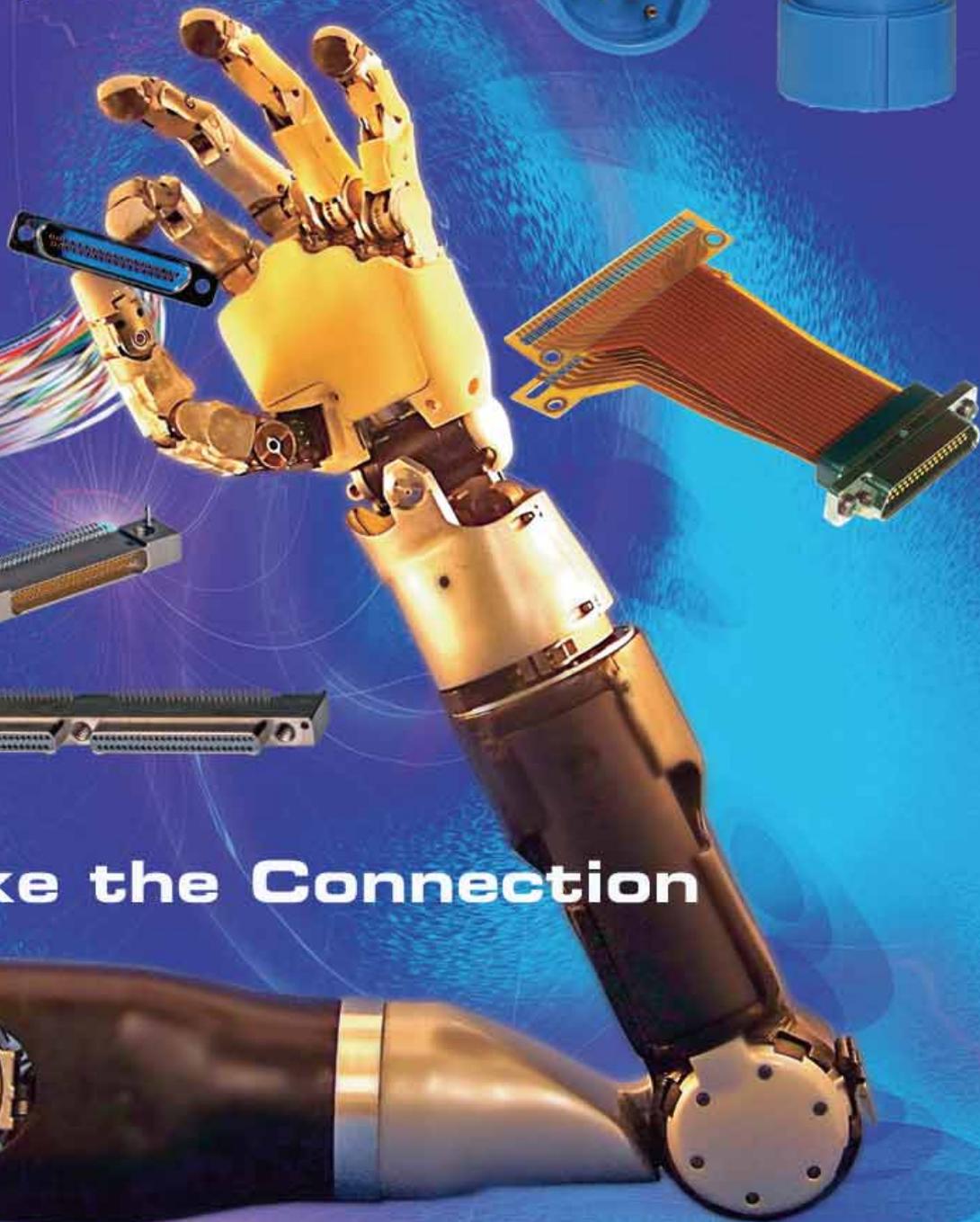
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# WEW Extends Refurbishment Contracts with German Bundeswehr



Company uses new service facility to bring systems to latest standards after operational deployment.

Contracts worth over one million Euros have been awarded by the German Armed Forces to WEW, leading suppliers of deployable fuel and water systems. The contracts are to refurbish the German Armed Forces equipment at the end of their operational deployments in Kosovo and Afghanistan.

During the refurbishment process in the recently established, purpose designed, facility, the ISO based water and fuel systems will be deep cleaned and brought up to the latest standards.

“This contract is the first of what we hope will be a number of refurbishment opportunities as our defence customers bring their equipment back from operations and seek to have it fully prepared again,” said Dr Ulrich Bernhardt, Chief Executive.

“We design our systems to be rugged and able to take all the mechanical and thermal stresses of deployment in hostile areas. To maximise the already long life cycle having the equipment updated and refurbished ensures that this life span extends well beyond the initial expected serviceable period. This makes return on investment even better. The design of our systems is

intentionally rugged with the result that none of our supplied units have ever knowingly failed,” added Dr Bernhardt.

In the refurbishment facility at WEW’s site in Weitefeld, Germany, the units are inspected together with the German Armed Forces before the work is begun. Where necessary heating, insulation, pumps, chlorination units and electrical installations are updated and

any obsolete or missing parts replaced. All significant mechanical damages are repaired and the systems will be brought back to high quality standards with a new paint finish. Prior to shipping back to the customer the units are re-certified and inspected by the authorised inspection body and Quality Inspection by the German Armed forces (GPS, Güteprüfdienst der Bundeswehr).





ib there

# NCT CBRNe EurAsia

3-6 March 2014

## NCT CBRNe EurAsia - Kiev, Ukraine

IB Consultancy and Premier Expo Ukraine are proud to announce their cooperation. The Non-Conventional Threat event series joins the 4<sup>th</sup> edition of the Kiev International Protection, Security and Fire Safety (KIPS) event which will take place on 4-6 March 2014 in Kiev, Ukraine. Join us for an outstanding pre-conference excursion to Chernobyl on March 3, and the three-day exhibition and conference at KIPS!

### Event Highlights

- \*Visit KIPS, Ukraine's largest homeland security exhibition (4500 visitors in 2013)
- \*Addressing the most urgent CBRNe related threats in the Eurasian region
- \*Network with attendees from regional Government, Military, Law Enforcement and the Commercial Sector from Ukraine and across Eurasia
- \*Official government delegations from all over Europe, the Near East and Central Asia
- \*Pre-conference excursion to Chernobyl

### Featured Speakers

- Col O. Tsysa**  
Head of Laboratory for Examination of Explosives and Explosive Devices, State Research Forensics Centre, Ministry of Internal Affairs, Ukraine
- Col Henry Neumann**  
Commander, Bundeswehr CBRN Defence Command, Germany
- Mr Sergey N. Lukashenko**  
Director, Institute of Radiation Safety and Ecology, Kazakhstan
- Mr Zviad Katsashvili**  
Emergency Management Department, Ministry of Internal Affairs, Georgia
- Prof Ulmas Mirsaidov**  
Director, Nuclear and Radiation Safety Agency, Tajikistan
- Dr Umar Sagitovich Salikhbaev**  
Director, Institute of Nuclear Physics, Uzbekistan
- Supt Simon Turner**  
Strategic Firearms Commander, Ministry of Home Affairs, United Kingdom
- Dr Andreyan N. Osipov**  
Head of Radiation Biophysics and Ecology Lab, Academy of Sciences, Russia
- Mr Oleg Kryklyvets**  
Dept of Emergency Preparedness and Response, NAEK Energoatom, Ukraine
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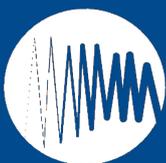
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# Xplore RangerX Rugged Tablet Now Available on GovX



Xplore Technologies Corp. (NASDAQ: XPLR), the manufacturer of the world's most powerful, longest-lasting and rugged tablets on the market, announces the availability of its RangerX Android rugged tablet on GovX, the largest e-commerce website exclusively for military and government members. Through GovX, the RangerX will be sold to retired and active military and government employees for their personal use.

"With its rugged military-grade standards, the RangerX is the ideal tablet for GovX and its members," said Mark Holleran, president and chief operating officer for Xplore Technologies. "Its ability to operate even if dropped or covered in dust and debris make it a great tablet for everyday use on the base or at home."

"GovX members put themselves in harm's way every day and can get pretty roughed up in the field," said Marc Van Buskirk, founder and CEO of GovX. "Our members need tough gear that can keep up with

their daily routine, and having Xplore join the GovX family of brands is a perfect addition."

Xplore Technologies' RangerX device is a Google certified 2.2 pound Android rugged tablet designed to meet the needs of the military and the harsh environments where it operates. It is certified rugged with both IP65 and MIL-STD 810G ratings, provides the largest storage capacity on the market, operates Jelly Bean 4.2.2 and has a battery life of up to 10 hours. In addition, the tablet's vibrant outdoor viewable, multi-touch display allows for seamless transition from indoors to outdoors. The RangerX is available with a common access card (CAC) reader option and FIPS 140-2 compliancy, providing the most secure

rugged experience for government and military operations.

#### Suggested Tweet

"RangerX #rugged #tablet now available on @shopGovX <http://xplt.ch/1bk6o8M> NEWS from @XploreRuggedPC"

#### Supporting Information:

- For more information on Xplore Technologies, please visit [www.xploretech.com](http://www.xploretech.com)
- Read more about the RangerX: <http://www.xploretech.com/products/rangerx/>
- Follow Xplore on Twitter: @XploreRuggedPC

#### About Xplore Technologies®

Xplore Technologies Corp. has been a leading global provider of truly rugged tablets since 1998. Xplore tablets are among the most powerful and longest lasting in their class, withstand nearly any hazardous condition or environmental extreme, and feature competitive pricing and significant ROI. The company's products are sold on a global basis, with channel partners in the United States, Canada, Europe and Asia Pacific. Xplore Technologies' tablets are deployed across a variety of industries and sectors, such as energy, military operations, manufacturing, distribution, public services, public safety, government, and other areas with hazardous work conditions. For more information, visit the Xplore Technologies website at [www.xploretech.com](http://www.xploretech.com).





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