



● ● Rob Hall, Head of Product Strategy at Chemring Technology Solutions

Chemring Technology Solutions is a global provider of advanced Electronic Warfare (EW), Explosive Ordnance Disposal (EOD), and Communication Information Systems (CIS) products that deliver leading edge technology to mitigate current and emerging threats.

Trusted by armed forces, governments, and national security customers worldwide its understanding of operational requirements allows it to deliver products able to meet today's asymmetric threat environments. Chemring products are relied upon by the best equipped armed forces in the world, including the UK MoD and NATO allies.

# GMC

## Q&A

## Enabling the military to get their job done ●●

Chemring Technology Solutions was established to develop electronic warfare, signals intelligence, EOD, counter IED, tactical communications and cyber security technologies. Its leading-edge technologies are supplied to defence forces around the world, including the UK MOD and NATO allies, to mitigate current and emerging threats. Amy Saunders spoke with Rob Hall, Head of Product Strategy at Chemring Technology Solutions, to find out more about the company's capabilities, latest developments and market expectations.

### GMC: Can you provide a brief overview of the development of Chemring Technology Solutions (CTS) over the years?

**Rob Hall:** For the last sixty years, our approach has been to deliver capabilities to our military customers that enable them to get the job done. Our equipment has supported operations from Northern Ireland to Afghanistan, through their urgent procurements and core-capability purchases. This has driven us to introduce market firsts and world-leading products, with a heritage that dates back to the early days of radar development. The Romsey, UK site worked on the early development of UK digital military communications, building expertise that would be used to create equipment that made the world's first 3G cellular phone call on the Isle of Man.

CTS' current product portfolio builds-on specialist explosive ordnance disposal (EOD) products from Chemring EOD and key products developed at Roke Manor Research, Chemring Group's world-class electronics R&D organisation. Chemring EOD was acquired from its founder in 2006, bringing into the Chemring Group a new capability in EOD defeat and electronic initiator products. This electronics capability was transformed by the acquisition of Roke in 2010, which brought world-leading technology in IED detection, jamming and Electronic Warfare. Chemring Technology Solutions was formed in 2015 by merging the product ranges, development teams, and production facilities of Roke and Chemring EOD.

Our continued mission is to provide innovative solutions that enhance operational effect and protect lives.

### GMC: What services and solutions does CTS provide to the military and government markets?

**Rob Hall:** We work very closely with our customers worldwide. Some know exactly what they want, others ask us for guidance. We have off the shelf, standard-product ranges e.g. the disruptors, initiators, radar altimeters and GPS interference cancellation (GINCAN). We also have standard-or-customised solutions e.g. our EW Resolve products. In addition, we also provide full-custom, bespoke offerings. The latter includes our Locate, HF Direction-Finding products, where we deliver



● ● Chemring Technology Solutions GINCAN unit

the full solution including design, civil engineering, concrete ground works, installation, commissioning and hand-over.

All of these are accessible globally and supported through-life, either via the Chemring Group or our worldwide network of agents and distributors. Looking at the products in a bit more detail:

- **Electronic Warfare and Signals Intelligence** - A range of capabilities, strategic through to tactical, from a portfolio which includes mounted and dismounted electronic warfare systems (RESOLVE and LOCATE-T) and strategic signals intelligence and monitoring (LOCATE).
- **Counter IED/EOD** – Including the full range of search, initiate, disrupt, de-arm, and neutralise equipment. Our product portfolio is focused on Detect - Defeat – Deny.
- **SmartLink** - A rapidly deployable, scalable, low size, weight and power (SWaP) cellular network-in-a-box. Turn up, switch on, wait three minutes, and you have a cellphone network.
- **GINCAN** – Protection against the proliferation of GPS jamming devices providing GPS assurance.
- **Miniature Radar Altimeters** – For aerial targets and UAVs, the most technologically capable MRA in its class.
- **VehicleScan** – A proven, advanced, under-vehicle surveillance solution for site protection (both Commercial and military facilities).
- **SmartSwitch** - A data management system to best route comms in a large, mixed network e.g. military satellite, cellular, WIFI.

#### **GMC: Where does CTS see itself in the market, and how does it compare with its competitors?**

**Rob Hall:** Our market is global, our sectors are: EW, EOD, Communications/Information Systems (CIS). Over the past two years, our equipment has been bought by 47 countries. We can reasonably say that we're market leaders in Electronic Warfare, Direction Finding, EOD and Protection. We focus on what we're good at: small to medium scaled solutions that are flexible enough for multi-role use and through-life upgrade.

As an example, the RESOLVE EW manpack was developed as an Urgent Operational Requirement to support forces in Afghanistan. We have subsequently developed the system, through customer feedback and internal investment, to the modern globally deployed system we have today – we do not just sit on a product, we ensure it survives for the future – our future development will be Open System Architecture and Multi-function EW enabled, to ensure Joint and Coalition Force integration, and intelligence sharing. Our customers will see how they can move forward with us, through upgrade paths and roadmaps that we deliver on.

I'd love to say we have no competitors, however, we do, so we're always looking at how we can provide higher value to customers. Our tight-focus enables us to tailor solutions to customer-specific operational requirements: We're not fighting the last conflict and we're not offering something that requires a huge budget to buy-into.

#### **GMC: In March 2015, CTS demonstrated the industry's first miniaturised GPS anti-jamming protection and detection product. How does GINCAN improve upon other products on the market?**

**Rob Hall:** Large, expensive, military-grade, 5Kg, anti-jam is not an option on a light-weight, space constrained platform, such as a small UAV. You need something with a small size, light weight and low power envelope. We developed GINCAN as there is no other product on the market that achieves this. Although we have seen GPS units that claim built-in anti-jam, the chipset solutions are unable to deliver the performance necessary to provide effective anti-jamming.

GINCAN offers a level of protection for UAVs, which, allied to the jam-detect capability, opens up new and interesting concepts of operation. When flying into a contested area, the

jammer is detected before you lose the GPS signal. This allows you to fly further into a jammed area, avoid the point where the jammer is too powerful, and fly around to map the jammed zone.

No integration work is required to achieve this - GINCAN simply plugs into the existing GPS receiver, adding only the 125g GINCAN and one additional GPS antenna. The system can use the same antennas as your current solution, and provides the same accuracy as you currently get.

#### **GMC: In April 2015, CTS launched the world's first hand-held IED detector with interchangeable sensor heads for wire and metal detection. How is the GroundHunter MHDS (Multi-Head Detector System) improving defence group capabilities?**

**Rob Hall:** Our aim from the outset has been to enable search teams to respond quickly to changing scenarios and ground conditions, whilst minimising the weight- and training-burden.

The hand-held equipment has multiple, plug-in heads which detect different targets. As this reduces the overall system weight, the operator can carry more than one, giving them flexibility to change detector-type in response to the specific scenarios encountered on their operation.

There is a common, simple, user-interface reducing training needs and helping to further reduce the soldier burden for both detection and route proving techniques. It's quick to learn, quick to deploy and easy to use without specialist knowledge. As a novice, I picked one up and was detecting targets, with no training, within seconds.

GroundHunter MHDS has a future-proof design to ensure compatibility with new sensor heads – thus as innovative technologies become available, GroundHunter MHDS will have the ability to be rapidly updated to address new threats.

These unique sensor technologies can also be effectively deployable from vehicles (POD) and remote controlled platforms (ROVPOD) to allow improved separation of search personnel from the threats presented by IEDs. Our sensors can be operated at relatively high speeds and used alongside other sensor technologies, with the data presented separately or simply integrated with other equipment user interfaces as required. This makes it simple, both to add the new sensor capability to currently deployed systems, and also to interpret the information. It also means they can be fitted to non-specialist vehicles for continuous assessment of an operational area.

Summarised, our approach is to improve defence group capabilities through modularity, diversity of sensors, ease of use, compatibility of technologies and options for deployment methods i.e. providing a unique toolkit for counter IED detection system of the present and the future.

#### **GMC: What are the latest trends and challenges you've observed in your market, and how is CTS responding to these?**

**Rob Hall:** On the Land EW side, there are two considerations:

- Customers engaged in counter insurgency operations who require low SWaPC (Size, Weight, Power and Cost) systems.
- Larger programmes in the early stages of definition that require a new generation of capabilities in order to deal with the evolving electronic terrain.

Our approach is to meet the needs of the latter, without being cost and size prohibitive for the former. We have research and thought-leadership programmes in place to define the environments, the needs and the implementations that will deliver appropriate capabilities.

The contemporary operating environment in the context of 'hybrid warfare' poses many challenges. There is the proliferation of commercially available communications infrastructure, which could be utilised by non-state actors, and also the ever-improving, low probability of intercept military grade systems. We have to deal with both. This demands a new approach to

generating tactical, actionable intelligence to the decision makers.

Moving to detection - NATO deployments to the recent Iraq and Afghanistan conflicts continued to operate with many of the existing methods and equipment e.g. handheld detect capabilities. Many organisations are now looking at how to remote, or reduce risk to, the end user. One example of this is the move to vehicle-mounted solutions. Along with the technical challenges to operate at stand-off, this also introduces the challenge of equipment interoperability and compatibility. A user on foot will be operating a low number of individual systems, however, those on a vehicle are often varied, complex and transmitting at high powers. Something that needs considered engineering and operations solutions.

Another rapidly-moving area is cellular comms. Whilst still in its infancy in military usage, many organisations are interested in testing out the capability, both as an indicator of future solutions and also as something that they will be operating against in a mixed-actor scenario.

Other organisations have specific missions to support e.g. jungle operations and disaster scenarios. Interest in our SmartLink product (a rapidly deployable cellular network-in-a-box) is currently coming from Asia, MENA, Europe and North America. Cellular comms will be a part of future warfare, the challenge is to stay close to the customer base to match products to the emerging needs over the next five years.

As we've discussed, future threats will be highly sophisticated and the environment more complex, congested and contested. The scale of operational need will vary, but the underlying

principles will remain the same. These challenges are at the forefront of our thinking when looking at our next generation solutions.

**GMC: Defence forces around the world are reportedly cutting back on spending due to budget constraints. How is this affecting CTS' operations?**

**Rob Hall:** Although there is an overall downward trend in defence spending, we are seeing growth in our core markets. Procurement is driven by the nature of conflict and the need to put soldiers in harm's way. Our customer base demands agility and responsiveness, especially when they are conducting operations.

The operational environment evolves in relatively short periods of time; it's this responsiveness to uncertainty that customers return to Chemring for. Our new products are gaining traction with our customers, as they see the innovative capabilities on offer. This is particularly true of our IED detect portfolio, which provides the best wire detection technology available. Something that's not required in peace time, but vital in current scenarios.

**GMC: What does CTS expect from 2017 and beyond?**

**Rob Hall:** Our discussion has highlighted a healthy mix of challenge and opportunity. We are looking well past 2017, with roadmaps out to 2025 and beyond. As customer research budgets tighten, it becomes increasingly important to drive these roadmaps internally to align to the future needs of the battlespace and work closely with our customers. **GMC**



● ● GroundHunter MHDS

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