

Innovative Systems for Individual Solutions





Graham Beall – *Managing Director of Chess Dynamics*

Graham has held the role of Managing Director of Chess since its foundation in 1993.

Graham is the founder and Group Managing Director of Chess Dynamics. He began his career as an apprentice at Philips Electronics, becoming its youngest Mechanical Design Engineer, moving into the defence industry in 1984.

As Senior Mechanical Engineer, Graham managed the development of new generation servo controlled, high accuracy stabilised radar platforms and positioning and tracking systems for the UK and European defence markets. His subsequent roles included Manufacturing Manager and then Lead Engineer for all new development projects. Graham set up Chess in 1993, initially focusing on high precision automation products and solutions for the electronics, medical and aerospace sectors. Under his direction it has evolved into a leading provider of surveillance and tracking systems for defence and security customers worldwide.

A stylized, handwritten signature in white ink. The signature is fluid and cursive, with the first letter being a large, prominent 'G'. It is positioned in the lower right area of the slide.



Chess Dynamics is a defence and aerospace sub-system supplier to UK and overseas customers, using engineering expertise to develop new and innovative rugged products qualified to work in the harshest environments.

Chess designs and manufactures an extensive range of Electro-Optical (EO) tracking and surveillance intelligent sub-systems for military land and naval applications in addition to critical infrastructure and security systems.

These solutions incorporate thermal imagers, TV cameras, laser range finders and radars. Chess enable the user to control the platform by joystick, auto-track, slew-to-cue, radar-cue and remote sensor-cue for passive target detection, recognition and identification. The more complex EO systems are integrated and used as part of complete fire control systems and may also be integrated into vehicle surveillance systems.

Chess provides its customers with a complete design, development and manufacturing service from standard products to bespoke engineering solutions.

Chess products are designed considering the entire life cycle. This begins with requirements capture, operational analysis, and survey through to installation, training and maintenance. The use of modular designs also eases future technology insertion to keep pace with rapidly changing requirements.



NAVAL SYSTEMS



Sea Eagle Family of Systems

The Sea Eagle Family comprises fire control and surveillance systems specifically designed to provide vessel operators with comprehensive situational awareness, target detection, tracking and weapon fire control. The systems employ a suite of electro optical sensors to deliver a comprehensive visual picture 24 hours a day that provides both a broad view of the vessel operating area and precise classification of targets. In addition to electro optical sensors Sea Eagle FCRO deploys a state of the art FMCW Doppler tracking radar that extends the system performance in operating range and provides an all-weather target engagement capability.

Sea Eagle systems are operational with seven customers world-wide and are currently on order for a further two; over 80 examples of the systems are operational.

Surveillance

Sea Eagle systems employ advanced image processing techniques to provide a high level of automated operation during surveillance and target tracking. Producing both a panoramic image of the operating area and high magnification, still and moving images of detected targets the systems can be set to alarm on pre-defined target types and associated behaviour.



Weapon Control

Sea Eagle systems offer a weapon control sub-system that incorporates high accuracy gun prediction together with flexible weapon interfaces that will facilitate operation with any in-service naval gun mounting from 20mm to 127mm.

The systems are designed to operate in a stand-alone configuration with a dedicated operators console or as an integral element of a vessels command and control system.



LAND SYSTEMS



Hawkeye Land Systems

The Hawkeye Family comprises fire control and surveillance systems specifically designed to provide operators with comprehensive situational awareness, target detection, tracking and weapon fire control. The systems employ a modular suite of electro optical sensors to meet the operators mission requirements, hot swapping of sensors can be done in the field facilitating platform role changes. Capable of providing real time video and target coordinates to other effectors or command centres in the operating network. In addition to electro optical sensors Hawkeye AD deploys a state of the art FMCW Doppler tracking radar that extends the system performance in operating range and provides an all-weather target engagement capability in a GBAD role.

Surveillance

Hawkeye systems employ advanced image processing techniques to provide a high level of automated operation during surveillance and target tracking. Producing both a panoramic image of the operating area and high magnification, can be equipped with ground surveillance radar.

Fire Control

Hawkeye systems offer a weapon control sub-system that incorporates high accuracy gun prediction together with flexible weapon interfaces that will facilitate operation with any enabled weapon.

All systems are designed to operate in a mounted, dismounted or static position.



CUSTOM SYSTEMS

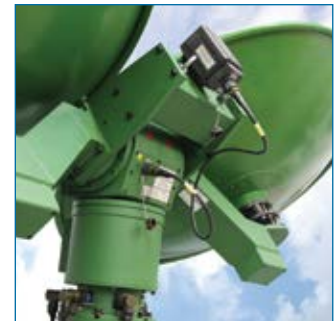


For over 25 years Chess Dynamics has been a market leader in the design and manufacture of rugged, military, electro-mechanical platforms.

Employed in such diverse applications as armoured vehicle surveillance, naval search radars and precision tracking systems these platform sub-systems offer effective performance coupled to competitive acquisition and ownership costs.

Solutions to satisfy new customer requirements can usually be met by the adaption of an existing design which is optimised to meet the specific system/platform application. A good example of such adaptations is the growing range of antenna stabilisation and rotation platforms for both naval and land-based search radars. Where adaption of an existing design is not possible Chess will undertake a bespoke design to meet the customer's specific requirements.

Chess offers a range of 'off-the-shelf' one and two axis tracking directors offering a wide range of dynamic performance, accuracy and payload capacity/configuration. The range also incorporates automatic alert, localisation and target classification which enables ease of operation at reduced cost.



SECURITY SYSTEMS



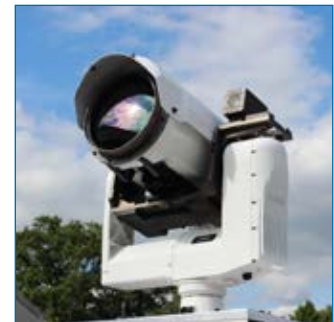
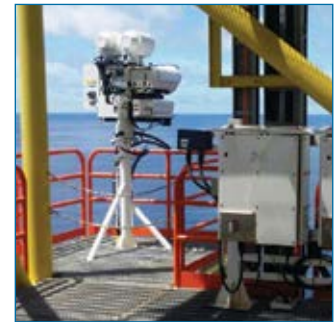
Sigma Family of Systems

Sigma LEO, from Chess Dynamics is a family of electro optical systems specifically designed for long range surveillance and tracking applications. They are optimised for the detection, identification and image/video capture of the full range of contacts in border and coastal surveillance applications. Fitted with an advanced sensor combination of mid-wave thermal imager and high-performance TV camera, the Sigma LEO systems will automatically provide both video and still images of targets, 24 hours-a-day, at distances out to 15km and beyond. Critical infrastructure and key assets can also benefit from the assurance provided by a Sigma LEO system.

The range of Sigma LEO systems have been specifically configured as an 'intelligent' sub-system element of a multi-node integrated surveillance system. Sigma LEO employs an ethernet interface for both function control and the transmission of sensor images, enabling connection over long ranges by fibre or wireless communications. Alternatively, or in addition, the system can be supplied with a local control console.

Whether installed as part of a multi-node system or in a 'stand-alone' configuration, Sigma LEO systems can receive target indication from other sensors / systems, including surveillance / tracking radar, AIS, ADSB and GPS.

Sigma LEO systems incorporate a custom processing unit that provides advanced function control, enabling the autonomous and semi-autonomous operation of the system including automatic target classification.



COUNTER-UAS



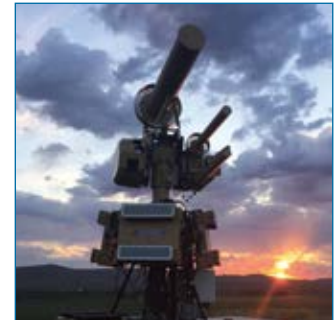
Chess Dynamics' Counter Unmanned Air System (C-UAS) solutions are designed to disrupt and neutralise Unmanned Aerial Vehicles (UAVs) engaged in hostile airborne surveillance and potentially malicious activity.

The threat from UAVs is increasing across all environments whether on land or sea, in military or civilian scenarios. The Chess C-UAS range of solutions will assist the enforcement of exclusion zones to protect critical assets and population from unwanted surveillance or critically attack from hostile UAVs carrying arms or explosives.

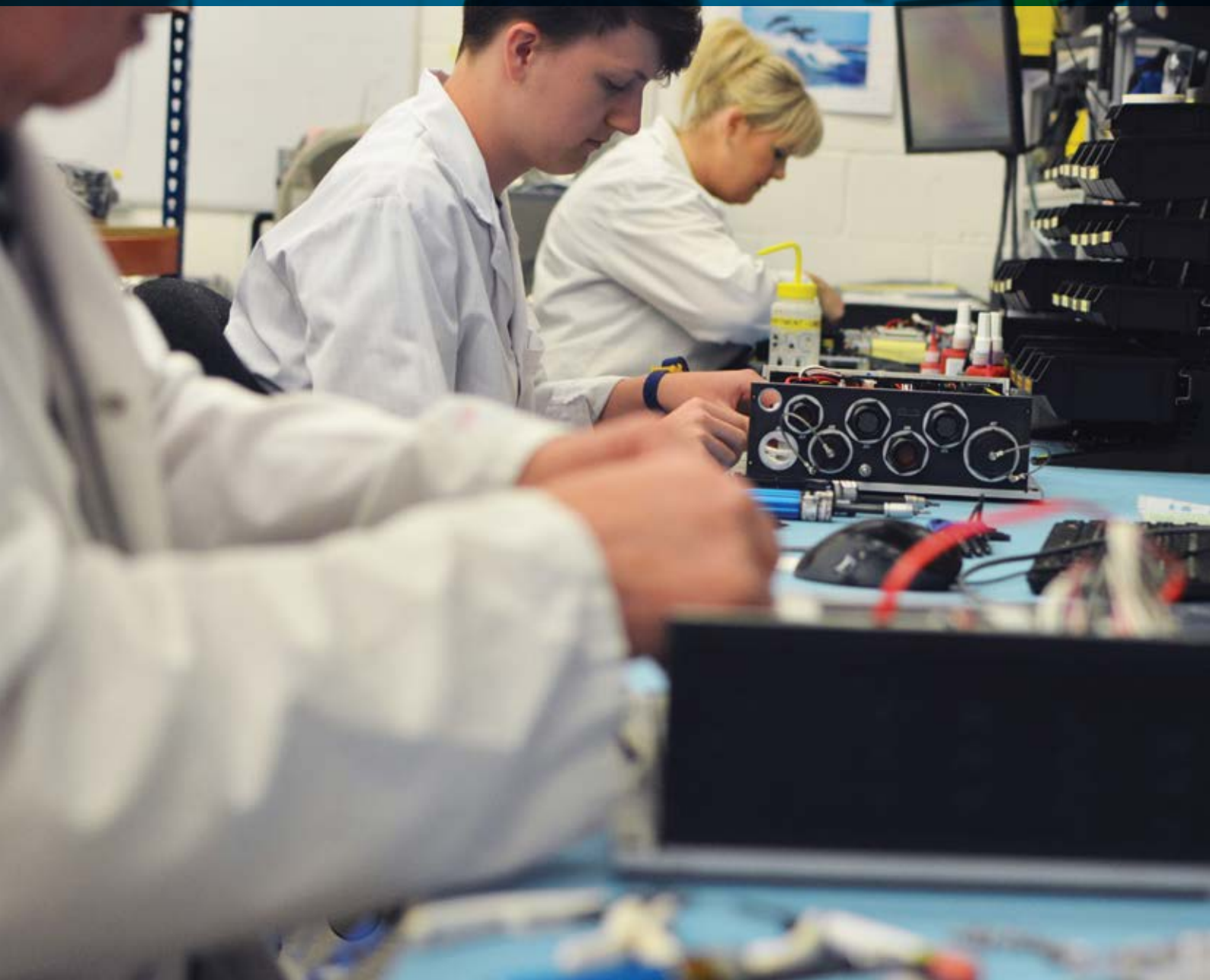
All the Chess C-UAS solutions have the ability to maximise multiple sensors and fully integrate into security or combat management systems. The range also incorporates automatic alert, localisation and target classification enables ease of operation at reduced cost.

With UAS technology evolving quickly, the Chess C-UAS solutions are design to allow rapid reconfiguration of both the detect and disrupt elements to provide an enduring counter measure for the future.

The Chess C-UAS solutions can be installed and operated from fixed locations and also from mobile platforms, which offers both flexibility and extended protection ranges.



CUSTOMER AND PRODUCT SUPPORT



Maintainability and Serviceability

At Chess Dynamics, we recognise that delivery is just the conclusion of the first phase of any project. This is why throughout the design and development phase; we continually think Maintainability and Serviceability: What critical and non-critical spares are appropriate? How can they be changed? Can it be done in situ with standard tools? How long will it take?

Post Design Services (ILS & CLS)

Reliability is fundamental to our business, we know how to design platforms and equipment for 24/7 operation, with little or no intervention. Many of our products exceed 20,000 hours MTBF with minimum service intervals but eventually problems will occur so customer training and good documentation is essential to identify, locate and fix faults quickly and efficiently.



Logistic Support

Support is not just about the products, it is about friendly and helpful customer co-operation and assistance. At Chess Dynamics we strive to give customer satisfaction with a prompt response to queries and requests.

Supply Chain 21st Century

Chess Dynamics is an SC21 approved company. SC21 is an aerospace and defence initiative aimed at improving the aerospace and defence supplier base ensuring it remains world class. By being a part of this initiative, we continue to provide high quality products and customer support, but do so in a more efficient and co-ordinated way. This enables us to;

- Improve supply chain performance
- Reduce duplication i.e. reduce costs
- Standardise metrics
- Become more flexible
- Redeploy our resources
- Gain customer feedback on performance



Cohort plc

The independent technology group

Chess and Cohort plc

Cohort plc (www.cohortplc.com) is the parent company of Chess Dynamics. Cohort plc is also parent company to four other innovative, agile and responsive businesses based in the UK and Portugal.



EID designs and manufactures advanced communications systems for the defence and security markets.



MASS is a specialist defence and technology business, focused on electronic warfare, information systems and cyber security.



MCL - an expert in sourcing, design and integration of communications and surveillance technology, as well as support and training for UK end users including the MoD and other government agencies.



SEA is an advanced electronic systems and software house operating in the defence, transport and offshore energy markets.



The sales team at Chess will be delighted to assist you with your requirement.

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