

# Military Capability



Chelsea Technologies Group Ltd



## Capability

The Chelsea Technologies Group (CTG) specialises in the complete scope of procurement from initial feasibility and assessment studies through the design process and prototyping to production. Full cognisance is taken of project management requirements, documentation standards, harbour and sea acceptance trials and, where appropriate, in-country training.

Collaboration across our military, civil and life science groups ensures that the latest technology and understanding is brought to any new project. This blend of skills is unique to CTG and of significant benefit to customers.

In service systems begin with an initial requirement and our expertise is to embrace a project from early concept, through experimental design and rapid prototyping, to trials at sea and full procurement.

Specialist areas include Naval oceanographic and acoustic systems for submarine, AUV and surface ship platforms. The scope of supply includes outboard sensors, inboard data displays, real time processing and data storage units.

Our involvement extends beyond initial supply to include comprehensive through life logistic support on all equipment. Fast and efficient maintenance cycles are undertaken within our comprehensive test, evaluation and repair facility. The Group has an extensive state-of-the-art calibration laboratory that operates to NAMAS standards where applicable.

The Group operates to ISO 9000 TickIT, ISO 13488 and EN46002 Quality Assurance standards. Military contracts are run in accordance with the requirements of DEFSTAN 05-91.

## Systems

CTG supplies systems to the Royal Navy to enhance their Anti Submarine Warfare (ASW) and Rapid Environmental Assessment (REA) capability and to provide acoustic systems support. Novel oceanographic and acoustic sensors gather a wide range of tactical information. Real-time data displays provide the command with concise information on which to base operational decisions.

As ASW systems become more advanced, and the threat becomes quieter, the tactical advantage increasingly depends on the successful exploitation of the ocean environment. Measurement of the physical and biological parameters, characteristic of different water masses, can be used to give enhanced knowledge of the environment and forewarning of

acoustically significant features such as fronts and eddies. Other parameters such as density, can for example, be used to trim submarines when surfacing through ice. As modern warfare scenarios move from the deep blue to encompass the littoral zone the need for accurate environmental data, transmitted in real-time, becomes ever more important. CTG systems are providing such key information to platform commanders.

Our acoustic systems provide at sea evaluations of the performance of in service sonars. CTG provide both permanent and portable systems, the latter being mobile and designed to be operationally ready in hours in order to providing low cost assessments of sonar systems prior to operation patrols.



## Sensor Technology

CTG offers a complete range of acoustic and oceanographic sensors designed to meet a diverse range of military requirements. A wide range of standard military acoustic products includes active and passive transducers (including ceramic composites and barrel stave transmitters), echo repeaters, sonar calibrators, mine actuation units and underwater navigation systems.

Our comprehensive research and development facility provides a centre of excellence for novel sensor design, prototyping and manufacture. Specialist sensors include:

Physical: temperature, conductivity, depth, turbulence

Optical: transmission, fluorescence, bioluminescence

Naval sensors and systems are required to comply with the environmental and coherence requirements demanded by the military sector. All Chelsea Technology Group's military products meet these requirements. In addition, we provide oceanographic sensors with a significantly extended calibration life to maximise operational life and minimise through life costs.

The requirement to provide an accurate recognised environmental picture requires a novel approach to sensors including reliability, low cost, low power and disposable technologies. All areas in which we have many years experience.

## Integrated Logistic Support

The story does not end with the supply of military systems. Through life support, including periodic calibration of the oceanographic sensors, maintenance, DRACAS, spares provisioning, together with obsolescence and risk management, is of paramount importance. The CTG is currently involved in long term comprehensive ILS activities for equipment supplied to the Military sector.

## Chelsea Technologies Group

Chelsea Instruments Limited, established in 1960 and currently operating from a 17,500 sq ft facility in West Molesey, Surrey, has been conducting research, development and production for the UK Ministry of Defence for over 25 years. Other business areas include oceanographic and freshwater sensor technology, homeland security systems and life science product development.

In 1992 Chelsea Instruments was contracted to supply the Sonar 2081 sensor system for the Royal Navy submarine fleet. This has recently been upgraded and supplied to the new Astute class submarine and designated Sonar 2115. The Chelsea Technologies Group also supply the outboard sensors for Sonar 2112.

In 2001, Chelsea Instruments merged with Marine Acoustics, specialists in underwater acoustics and sonar system technology, to form the Chelsea Technologies Group. The combined technology of the two companies provides a unique oceanographic and acoustic sensor and systems development and manufacturing capability for the military sector.



## In Service Systems

The Chelsea Technologies Group has designed, developed and supplied multi-parameter sensor systems to the UK and Overseas Navies.

### **Tactical Environmental Data Acquisition System (TEDAS)**

TEDAS is an oceanographic system designed to full military specification. It is based upon the technically advanced Sonar 2115, the successor to Sonar 2081, which is fitted to all UK submarines. Sonar 2115 is being fitted to the UK's new Astute class submarine. Overseas Navies are now adopting TEDAS.

The outboard multi-parameter sensor suite measures those physical and biological parameters that collectively ensure that the maximum tactical advantage can be sustained. The sensor suite is housed in a compact, robust housing, designed to withstand the full rigours of the military environment. The inboard rack mounted deck unit allows processing, display and storage of the collected and derived data. The UK (Astute) system includes IBIS (Integrated Bathymetric Information System), formerly known as Sonar 2090. The system is sufficiently versatile to accommodate up to two outboard sensor suites operating simultaneously to allow differentials data to be monitored, with provision for additional sensors if required. Two displays, operating independently, are provided for the Astute class fit.

A surface ship version is also available.

### **SeaSoar Towed System**

SeaSoar is an undulating towed vehicle for oceanographic data collection that operates to depths of 500 metres. It is deployed from surface ships and towed at up to 12 knots. Three systems are currently in use with the Royal Navy's two new survey vessels, HMS Echo and HMS Enterprise. The current sensor payload comprises a comprehensive range of highly advanced oceanographic sensors. Data is displayed in real-time providing the operator with a comprehensive mapping system in support of naval operations.

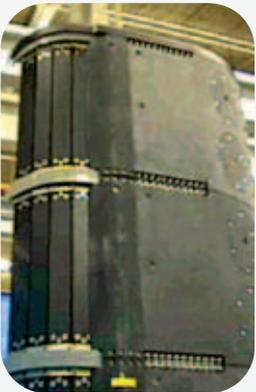
### **2112**

Chelsea Technologies Group supply the sensors for the new Sonar 2112 system. It is currently being installed prior to acceptance trials with the Royal Navy.

### **Versatile Acoustic Source System**

The Versatile Acoustic Source System (VASS) evaluates the performance of active and passive sonar systems that operate within the 30 Hz to 200 KHz band. The transducers are housed within a compact and robust tow fish, which is connected via a lightweight tow cable to a surface operations cabin. The cabin is a self contained, environmentally controlled, half size ISO container housing a processor, power amplifier and DSP electronics. Within the cabin, all transmissions are monitored on the systems digital analyser or headphone outputs.

*Photographs supplied courtesy of VT Group (HMS Echo), BAE Systems (Astute Class Submarine), Subsea 7 (Geosub AUV), Sea (2112).*



Chelsea Technologies Group Ltd

55 Central Avenue

West Molesey

Surrey KT8 2QZ

United Kingdom

Tel: +44 (0)20 8481 9000

Fax: +44 (0)20 8941 9319

[sales@chelsea.co.uk](mailto:sales@chelsea.co.uk)

[www.chelsea.co.uk](http://www.chelsea.co.uk)



Registration No: 00832429  
Registered at the above address