

Diving & Life Support Services

QinetiQ Diving & Life Support Services plays pivotal role in support of the MOD's Diving & Life Support Equipment team

Customer overview

The Diving & Life Support Equipment team is part of the Underwater Electronic Warfare group within the MOD Maritime Combat Systems (MCS) group.

Diving and Life Support Equipment responsibilities include all MOD diving and life support equipment and all equipment associated with emergency escape breathing devices.

The group's core responsibilities include the provision of:

- in-service support and procurement of all MOD diving equipment and fire fighting breathing equipment
- technical support, creation of safety cases and equipment provision logistics

The Diving & Life Support Equipment team are responsible for the entire acquisition lifecycle from developing user requirements through to providing in-service support. This is provided to all the diving organisations within the MOD including the Army, Special Forces, the Navy and MOD civilian diving.

They are responsible for a wide range of equipment including:

- dive suits, spares and pumps
- clearance divers' breathing apparatus
- rechargeable air breathing apparatus
- transportable manned compression chambers
- enclosed space diving systems

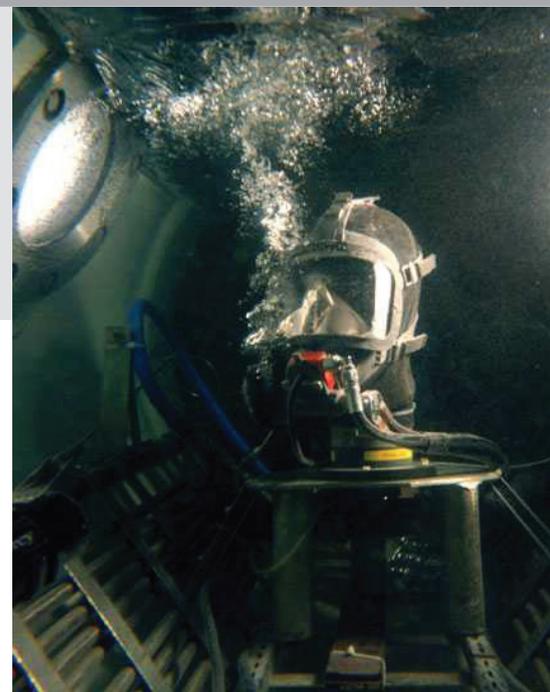
Key challenges of the MOD Diving & Life Support Equipment team

The Diving & Life Support Equipment team are faced with a number of challenges in delivering support "through the acquisition lifecycle". These include:

- development and maintenance of a current MOD diving policy
- providing a comprehensive service with limited resources
- effective management of a number of contractors
- management of key contract renewals
- satisfying a wide range of stakeholders including the MOD Superintendent of Diving, Navy Command and both the CAP AW (capabilities above water) and CAP UW (capabilities under water) groups
- responding rapidly to diving incidents where corrective actions must be put in place quickly.

"The nature of diving is inherently dangerous. Therefore meeting rigorous safety standards is a significant challenge and our absolute key priority," said Dave Cunningham, Capability Manager, Diving & Life Support Equipment, UK MOD.

A good example of a project undertaken by the MOD Diving & Life Support Equipment team was the development of clearance divers' life support equipment to support Royal Navy divers carrying



Diving equipment under test

out mine disposal duties. Specifically, the team were tasked with developing a mixed gas dive set with a very low magnetic and noise signature. For this project the team followed the CADMIT lifecycle from the concept and assessment phases to in-service over a two year period.

The role and value of QinetiQ Diving & Life Support Services

QinetiQ have established a long term partnership with the MOD which is part of the Maritime Strategic Capabilities Agreement (MSCA). Under this contract, QinetiQ provides the MOD with a range of services.

"QinetiQ Diving & Life Support Services provide the MOD with expertise across all diving and breathing systems. In addition they provide us with independent incident investigation support services," observed Dave Cunningham.

The range of activities that QinetiQ Diving & Life Support Services have been tasked with includes:

- Checking the safety of commercial off-the-shelf dive computers against the MOD's proven dive tables. This activity can help ascertain if dive computers could be used to increase no-stop dive time when diving at multiple depths on a single mission.
- Establishing the cold water duration of soda lime and its impact on CO₂ absorption in re-breathers to check if divers could remain longer in colder water before they surface. QinetiQ carried out a series of tests to independently identify the impact on soda lime.
- Tests on a new switch block on the divers' breathing apparatus to assess the impact on breathing inhalation and exhalation.

"Any new piece of equipment brought into service must be independently checked to ensure it meets the MOD's stringent safety standards. We rely on QinetiQ to carry out all new equipment testing and verification for us," said Dave Cunningham.

An example of QinetiQ's work in the acquisition lifecycle is tests conducted on in-service dive suits to assess their thermal insulation properties, as MOD divers operate in a very wide range of water temperatures.

"QinetiQ is excellent at equipment testing and assessment because they have high quality and well qualified people who know what they are doing and are very diligent in their work," commented Dave Cunningham.

QinetiQ play a pivotal role in incident investigations where its Diving & Life Support Services team are required to respond immediately to an incident anywhere in the world.

Dave Cunningham added, "QinetiQ is always on standby to respond to incidents efficiently and effectively. In addition if there is any equipment failure it is returned to QinetiQ for problem assessment which also requires a fast turnaround."

As part of QinetiQ's on-going support to the MOD, we provide updates on the constantly evolving diving standards generated by industry bodies in the UK and Europe.

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It is crucial to use up to date knowledge and QinetiQ remains vigilant and reports changes as they occur and assesses their likely impact on the MOD, its operations and supplier contracts.

Every piece of equipment issued for use by MOD divers has to be supported by a safety case to prove it is safe to use. These are presented for approval to the relevant MOD safety committee of which there are seven; one for each set of in-service diving equipment, including long endurance, rechargeable, emergency escape and extended duration breathing apparatus.

"QinetiQ deliver quality and common sense technical and scientific advice to the MOD safety committees," observed Dave Cunningham.

Summary of services provided by QinetiQ Diving & Life Support under the MOD MSCA agreement

- Diving underpinning – to keep abreast of developments in self-contained diving systems, methods of assessment and safety aspects.
- Optimisation of diving procedures – to identify techniques, in terms of diving breathing gases, decompression and thermal protection that may be used to optimise diving procedures.

- Thermal protection systems – continued development of techniques for assessing diver thermal protection systems and baseline insulation data on in-service and alternative diving suit materials.
- Independent expert advice – to provide Suitably Qualified and Experienced Personnel (SQEP) for expert advice to the MOD on diving equipment and procedures.
- Development of operational procedures and associated documentation – to provide the MOD with information to implement revised diving procedures and to create and issue supporting documentation.
- Support of liaison programmes – to provide the MOD with SQEP diving technical support when liaising with organisations external to the MOD.
- Diving and life support equipment engineering to provide baseline unmanned test data on in-service and other diving systems of interest to the MOD.
- Rapid response forensic examination of LSE (Life Support Equipment) – to provide an up to date, rapid response capability and service for the forensic investigation of diving incidents and equipment failures.

About QinetiQ Diving & Life Support Services

QinetiQ has unrivalled knowledge in the field of diving and life support. Over the last 30 years we have delivered diving and life support services to the UK Royal Navy, NATO, UK Health and Safety Executive and commercial diving organisations such as Technip.

We are a long-term partner for diving and life support research, testing and evaluation for the UK Royal Navy.

QinetiQ is one of the world's leading research organisations into hyperbaric physiological effects in diving and other environments, and regularly provides rapid response provision of forensic testing services for the investigation of diving incidents.

Our independence from suppliers is important to us and ensures that the advice we provide is totally impartial.

Our Diving & Life Support Services are supported by an extensive range of unique world class facilities in the Diving and Hyperbaric Test Centre at QinetiQ, Gosport, UK.

QinetiQ Diving & Life Support Services include:

- Equipment Testing and Validation – providing unmanned and manned testing services to define the safe performance of diving systems.
- Incident Investigation – rapid response forensic service for investigating diving equipment involved in serious incidents including the provision of expert witness.
- Diver Performance Optimisation, Testing & Advice – providing assessment of gas toxicity, decompression profiles, effects of sound and thermal protection for optimal diver performance.
- Diving Safety and Assessment – development of standards for diving equipment and systems, building safe optimised diving procedures and technical support to equipment safety cases.
- Diving Medical Support – medical support to diving operations including the provision of hyperbaric oxygen therapies at St Richard's Hospital, Chichester, along with the capability to perform diving medicals.

Delivering world class Diving & Life Support Services to customers around the world