



Underwater Product Portfolio





Avon Protection has more than 100 years of experience, delivering performance innovation, design and engineering solutions.

Avon Protection's capabilities include the design, development, test and manufacture of dive computers, closed circuit rebreathers for both terrestrial and underwater use, air purifying respirators, filters, escape hoods, powered air purifying respirators, self-contained breathing apparatus and thermal imaging.

Our skills in these areas are supported by the materials science expertise of the ARTIS team, which is co-located at our UK headquarters. We have an active program of product development and R&D, with well-equipped laboratories for the testing and evaluation all forms of respiratory protection devices.

Over our history of innovation, design and engineering, we have exclusively focused on the military, law enforcement, firefighting and industrial markets, understanding the unique requirements of these specialist, high threat, user groups. This depth of understanding and specialisation has enabled Avon Protection to become the recognised global market leader for respiratory products in this field.





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WHY CHOOSE AVON PROTECTION?

We have been at the heart of military innovation, with our expertise and experience taking users from the sea floor, through the land battle-space and into the air domain, protecting our global network of operators across the extremes of temperature, the harshest of environments and the most demanding of military operations.

Core to our capability is Avon Protection's internationally recognised engineering and manufacturing excellence and global quality control procedures, ensuring that we deliver world leading safety critical products, with world class support, to world class operators.

Our depth of expertise has ensured that we are a trusted supplier and partner to military's around the World, including the United States Department of Defense and over 60 other countries. Our expertise is underpinned by internationally recognised product, manufacturing and environmental certification, including ISO, CE, NIOSH, NFPA, NATO and military standards, which ensure that operator safety, reliability and performance remain at the heart of everything we do.





We are internationally recognised for our engineering and manufacturing excellence.

QUALITY ASSURANCE

MANUFACTURING QUALITY


At the heart of Avon Protection's innovation, design and engineering is our manufacturing processes and the associated quality control procedures. Avon Protection has been audited and accredited to ISO9001 standards, with quality management, configuration control and supply chain management defined as part of our Global Quality Management System (GQMS).

GQMS procedures have been in place since 1992, ensuring that we can deliver and maintain the highest level of manufacturing quality, from the first unit to the last.

MANUFACTURING ACCREDITATION AND COMPLIANCE

- MCM100 Manufacturing to CE 89/686/EEC
- Quality Management System to ISO9001 Latest Standards
- Configuration Management to DEF STAN 05-57
- Environmental Management System to ISO14001 Latest Standards



A photograph showing two men in a laboratory or industrial setting. One man is standing on a platform, adjusting a large, complex engine mounted within a metal frame. The other man is standing at a control console, operating a computer monitor and various gauges. The console has the 'ANSTI' logo on it. The background shows more industrial equipment and pipes.

Avon Protection's expertise is underpinned by internationally recognised product, manufacturing and environmental certification.

TRAINING

Avon Protection offer full capability training and train the trainer course structures, to allow clients to co-manage through-life, supported by our Customer Technical Support System.

Training for the MCM100 is provided in four distinct tiers:

- **Air diving (40m) user training**
 - 5 days dependant on user entry level experience
 - Teaches the diver to safely use an air diluent, in a no decompression and/or decompression environment
 - Course includes front line maintenance, setup and post-dive procedures
- **Mixed gas (100m) user training**
 - 5 days (prerequisite is Air user course)
 - Teaches the diver to use heliox or trimix diluents, down to 100m (training depth limited to 60m)
- **Air and mixed gas instructor**
 - 3 days, prerequisite is either air user or mixed gas user course
 - Advanced (Supervisor level) maintenance and fault-finding, class management and assessments
- **Maintenance technician**
 - 7 to 10 days
 - Supervisor level maintenance, level 1 service and level 2 service procedures



END-TO-END CAPABILITY PROVIDER

Disposal:

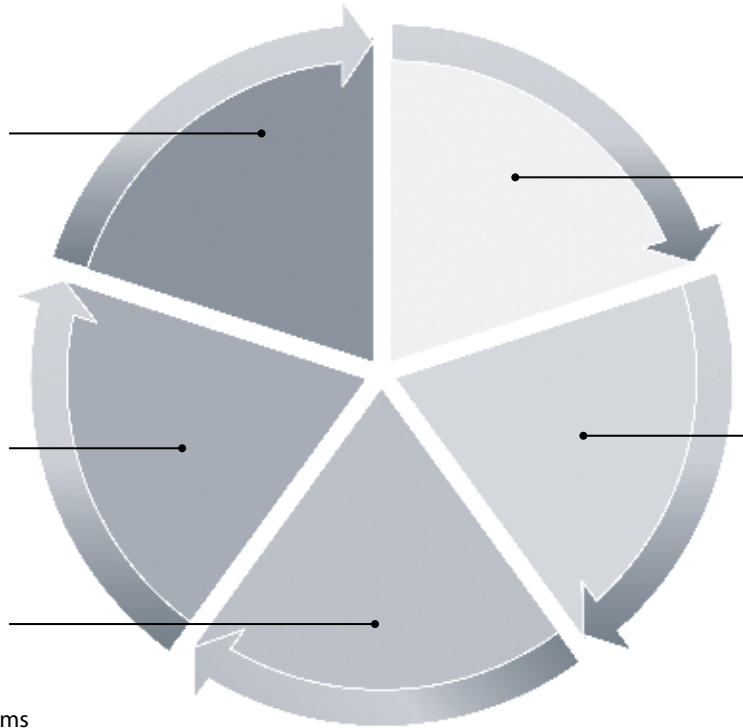
- Reward long-term relationships through trade-in and upgrade
- Recycle, where possible

Support:

- Effective end user training
- Provide through-life support, servicing and maintenance
- Support with expert reachback

Deliver:

- Operational capacity
- End user focussed systems
- Enhancing operational performance



Understand:

- Threat analysis to inform research and development
- Establish and collaborate to build performance
- Design and improve to meet tomorrow's needs

Inform:

- The product road map
- Develop bespoke solutions
- Establish user requirements to build capability

MCM100TM

MULTI-ROLE REBREATHER



Scan here for further
information on the MCM100



At the core of the MCM100's innovation is its world leading, revolutionary, advanced electronics package.

MCM100

The MCM100 rebreather was designed and developed around the diver, to deliver enhanced multi-role capability in the form of a new long endurance, electronically controlled rebreather.

The MCM100 is capable of integrating with a range of military diving applications, in particular mine warfare and Special Forces, including Covert Subsurface Infiltration, Submarine Release & Infiltration and Manned Underwater Vehicle Operations.

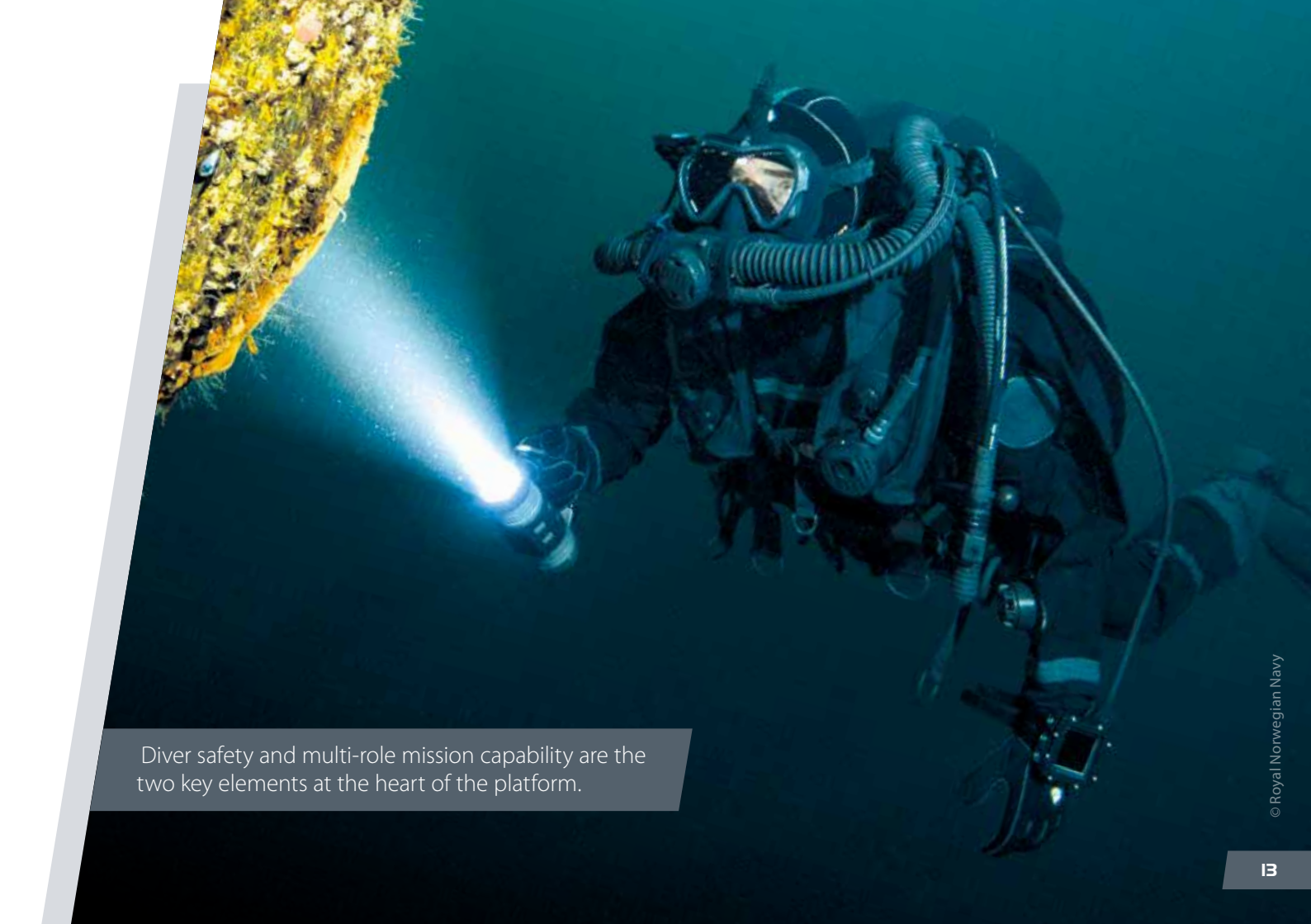
The MCM100 is a deep diving (100m CE rated), air and mixed gas, electronic control rebreather. The MCM100 heralds a revolutionary change in rebreather technology, placing two key elements at the heart of the platform; diver safety and multi-role mission capability.

At the core of the MCM100's innovation is its world leading, revolutionary, advanced electronics package, enabling the diver to focus on the task ahead and not the management of the dive or the system.

The multi-role design approach and advanced electronics package ingrained in the MCM100 is synonymous with Avon's history of innovation, design and engineering. Avon's manufacturing capabilities are centred on specialist user groups within the military, law enforcement and firefighting markets, all operating in high threat, high risk, dynamic environments.

This depth of understanding and specialisation has been applied to the MCM100, ensuring that it is a true multi-role rebreather, with upgradable and future proofed technology pathways, representing world leading technology, lowering extended service life and lower support costs. Consequently, it is no surprise that at the beginning of 2018, following product launch, it was announced that Avon Protection had been awarded the contract to supply a European military with MCM100 underwater rebreathers, together with in-service support.



A diver in full gear, including a helmet, goggles, and a breathing apparatus, is shown underwater. The diver is holding a bright flashlight that illuminates the surrounding water and a rocky, algae-covered structure on the left. The scene is set in a deep blue, dimly lit underwater environment.

Diver safety and multi-role mission capability are the two key elements at the heart of the platform.

MCM100 FEATURES

ADVANCED ELECTRONICS

- Multiple redundancy levels for electronics and batteries
- Advanced digital oxygen sensors with voting logic and 'bad sensor' removal
- Moisture tolerant carbon dioxide sensor
- Data acquisition facility with Bluetooth capability
- Backlit colour handset with automated pre-dive and command based alarms

STEALTH TECHNOLOGY

- A discreet LED Heads up Display (HUD) indicating equipment status
- Low magnetic signature and low noise


EASY BREATHING

- Extremely low work of breathing (WOB)
- High-performance open circuit Bailout valve (BOV) as standard
- Automatic diluent gas addition valve
- Manual diluent and oxygen gas bypass valves

OPERATIONAL FLEXIBILITY

- High pressure composite cylinders as standard
- Water tolerant breathing circuit and water removal systems
- Three carbon dioxide absorbent cartridge options
- Reduced mission set up time




A close-up photograph of the MCM100 control panel, a piece of equipment used in diving. The panel is black with a prominent yellow handle on top. It is densely packed with various cables and connectors, including a large silver metal connector in the foreground. The background is slightly blurred, showing what appears to be a diver's gear. A semi-transparent grey box with white text is overlaid on the bottom left of the image.

The MCM100 enables the diver to focus on the task ahead and not the management of the system.

MCM100 SYSTEM LAYOUT



A diver in full tactical gear, including a helmet, mask, and a large scuba tank on their back, standing in shallow water. The diver is wearing a dark, heavy-duty wetsuit and a helmet with a clear visor. A large, cylindrical scuba tank is mounted on their back, connected to a complex system of hoses and regulators. The diver is looking down and to the left, possibly at a task or equipment in the water. The background shows dark, rippling water.

Comprehensive range of accessories and tactical partnering provide mission focussed capability.

ACCESSORIES

The MCM100 comes with several optional extras. Additional enhancements can be developed with the client on request. The optional extras include:

- Alternative Decompression Algorithms
- Harness and Buoyancy Control System
- 2lt Bailout System
- 5lt Bailout System
- XBS (External Breathing System)
- Cylinder Transport Cases
- Data Downloading Software
- 1lt Suit Inflate System
- CO₂ Absorbant Options
- Weights
- OTS Full Face Masks
- Transit Case
- Multi-charger
- Buddy Heads Up Display
- Tri-bag System



2lt Bailout System



5lt Bailout System



Transit Case



Multi-charger



Weights



Tribag System



Transit Case

TACTICAL PARTNERS

Avon Protection are at the forefront of advanced military diving technology development. This coupled with Avon's 'Tactical Partners' global network of advanced diving equipment manufacturers, provides a single source capability for equipment development, supply, specialist modifications, maintenance and training.

Avon Protection have a track record of working closely with the global military for both new product and technology development as well specialist 3rd party equipment procurement, modification and support.

Some of these capabilities include:

- **Masks**
- **Diving Communications**
- **Suits**
- **Propulsion**
- **Navigation**

SUITS

Santi

Dry suits, thermal garments and heating systems

4th Element

Dry suits, thermal garments and base layers

MASKS AND COMMS

Ocean Technology System

Underwater communication and full face masks

Kirby Morgan

Full face masks

NAVIGATION

Blueprint Subsea

Diver navigation and sonar systems

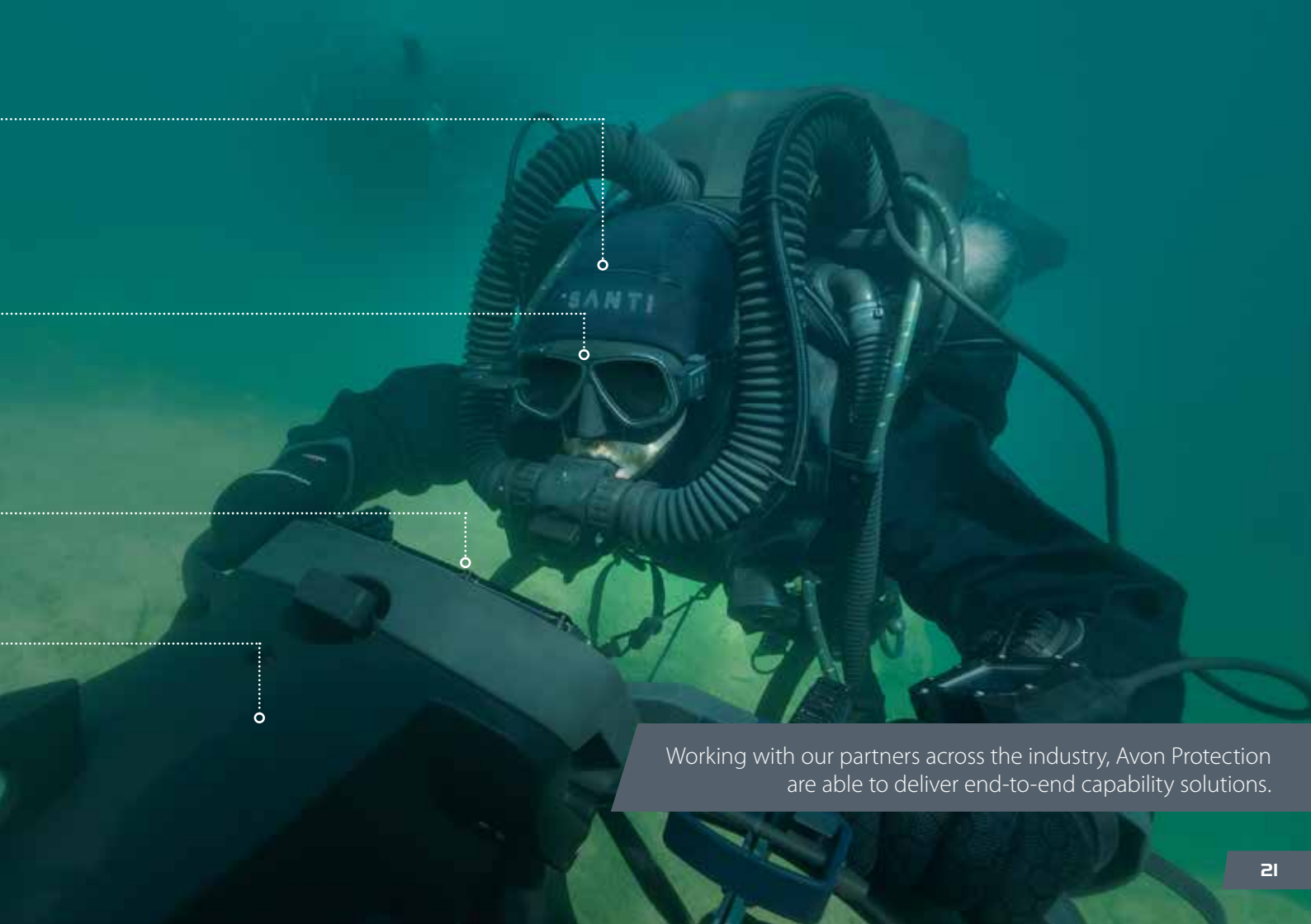
PROPULSION

Suex

Small diver propulsion vehicles (DPVs)

Patriot 3

Diver worn propulsion (Jet Boots)



Working with our partners across the industry, Avon Protection are able to deliver end-to-end capability solutions.

CORE
INTELLIGENT **UNDERSUIT**



Scan here for further information
on Core Intelligent Undersuit.



A capability enhancing collaboration with a key Tactical Partner, the Core Intelligent is our active heating system.

CORE INTELLIGENT UNDERSUIT FEATURES

USER COMFORT

- Maintains diver dexterity and maneuverability
- Heating element layout reduces risk of overlapping and overheating
- Lightweight system reduces diver burden
- Detachable gloves and socks for optimum fitting

INTELLIGENT SYSTEM

- Autonomous heating zones maximise battery life by optimising temperature control
- All heating zones controlled via integrated PCBs and thermistors
- Garment provides a redundant temperature cut-off control
- Heating zones have independent temperature set points

FABRIC PERFORMANCE

- Efficiently wicks moisture away from the skin to prevent secondary cooling
- High performance insulator
- Highly durable against snagging and pilling, allowing comfort for a wide range of activities
- Machine washable


DIVER SAFETY

- Active heating combats non-freezing cold injury
- Integrated with fail-safes to ensure zero effects of over heating
- A single external EO connector is present to disconnect the system from the power supply

EASE OF OWNERSHIP

- Ready to deploy quickly
- Underwater vehicle connector option
- Test tools option





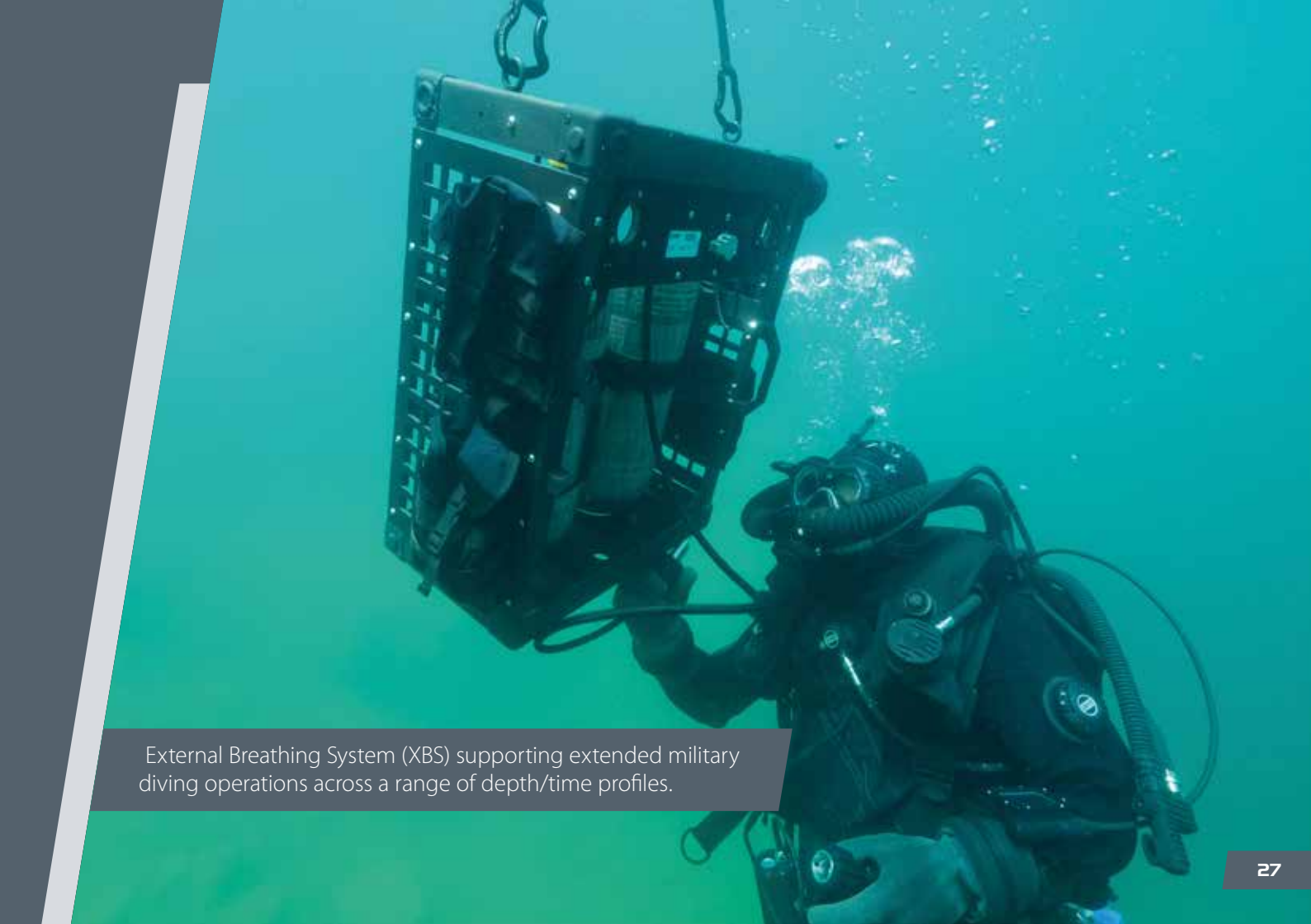
Autonomous heating zones actively manage diver body temperature during the mission.

XBSTM

EXTERNAL BREATHING SYSTEM



Scan here to access
the XBS datasheet.



External Breathing System (XBS) supporting extended military diving operations across a range of depth/time profiles.

XBS FEATURES

SIMPLE OPERATION

- Change over valve to switch between gases without having to disconnect.
- Quick disconnect system for rapid low-pressure connection with the MCM100's open circuit bailout-out valve mouthpiece system.
- Unique Quick Connect/Disconnect coupling that allows the diver to easily connect to the XBS system with minimal force, no matter what depth the diver is at.

OPERATIONAL FLEXIBILITY

- Option to have two different gas mixtures to aid decompression and improve diver safety.
- Optional low pressure ports for additional second stage regulators.
- Cylinders can be configured for oxygen, air or mixed gas use.


TACTILE & ROBUST DESIGN

- Low profile matte black military finish case and high performance, robust marine grade stainless steel frame.
- Robust flight case for transport and storage.
- Large tactile valve handle for use in cold temperatures and reduced visibility.



HIGH PRESSURE CYLINDERS

- Large independent twin 10 litre, high-pressure cylinders for extended duration.
- Individual cylinder high pressure contents gauges.
- Pressure relief valves for automatic and manual venting of gas from depth.



The XBS is specifically designed to provide additional off-board open circuit bailout for divers operating the MCM100 rebreather.

OTHER MARITIME RELATED PRODUCTS



Mi-TIC S – DAMAGE CONTROL

The Mi-TIC S is a premium lightweight thermal imaging camera optimised for naval damage control teams and on-board use.

The high performance components, selected to deliver an 1110°C dynamic range and increased resistance to high temperatures, fully sealed buttons and battery compartment to IP67 and protected thermal sensor, all ensure that the Mi-TIC S is unrivalled in maritime fire-fighting and damage control.



MP-PAPR – MARITIME CT

A departure from traditional rigid plastic construction systems, the Avon MP-PAPR is the world's first flexible PAPR unit, constructed from the same field proven Chlorobutyl rubber, as used for the Avon 50 series masks range.

The Avon MP-PAPR module delivers a compact and easily integrated PAPR unit providing cooling, lower user burden and reduced pulmonary stress.

The unique shape and construction allow the wearer to mount the PAPR in multiple ways, maximizing integration while delivering higher protection levels and improved well-being.



CS-PAPR – BOARDING OPERATIONS

The Avon CS-PAPR is the newest generation of CBRN Powered Air Purifying Respirator (PAPR) from Avon. Designed for use with Combination Unit Respirators (CUR's) the CS-PAPR allows the user to select the level of protection dependent on the threat, providing increased duration on target and safer operation.

The wearer can seamlessly switch between APR, PAPR and SCBA modes of protection and the modular methodology allows the user to add the Avon CS-PAPR to existing fielded systems such as the FM53/4 APR and ST53 SCBA.



ST54 – BOARDING OPERATIONS

Avon's revolutionary ST54 multi-role Respiratory Protective Equipment (RPE) system has been developed specifically for specialist applications where the user needs to respond to changing operational conditions.

Boarding an unknown vessel is one of the most hazardous special forces missions and the ST54 helps to mitigate these dangers.

The ST54 combines Avon Protection Systems' FM53 mask with new and innovative modular breathing apparatus technology to provide positive pressure SCBA and/or PAPR capability.



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Scan here for further information on our dive equipment products.

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