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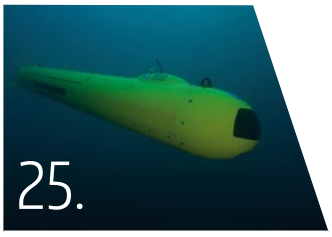

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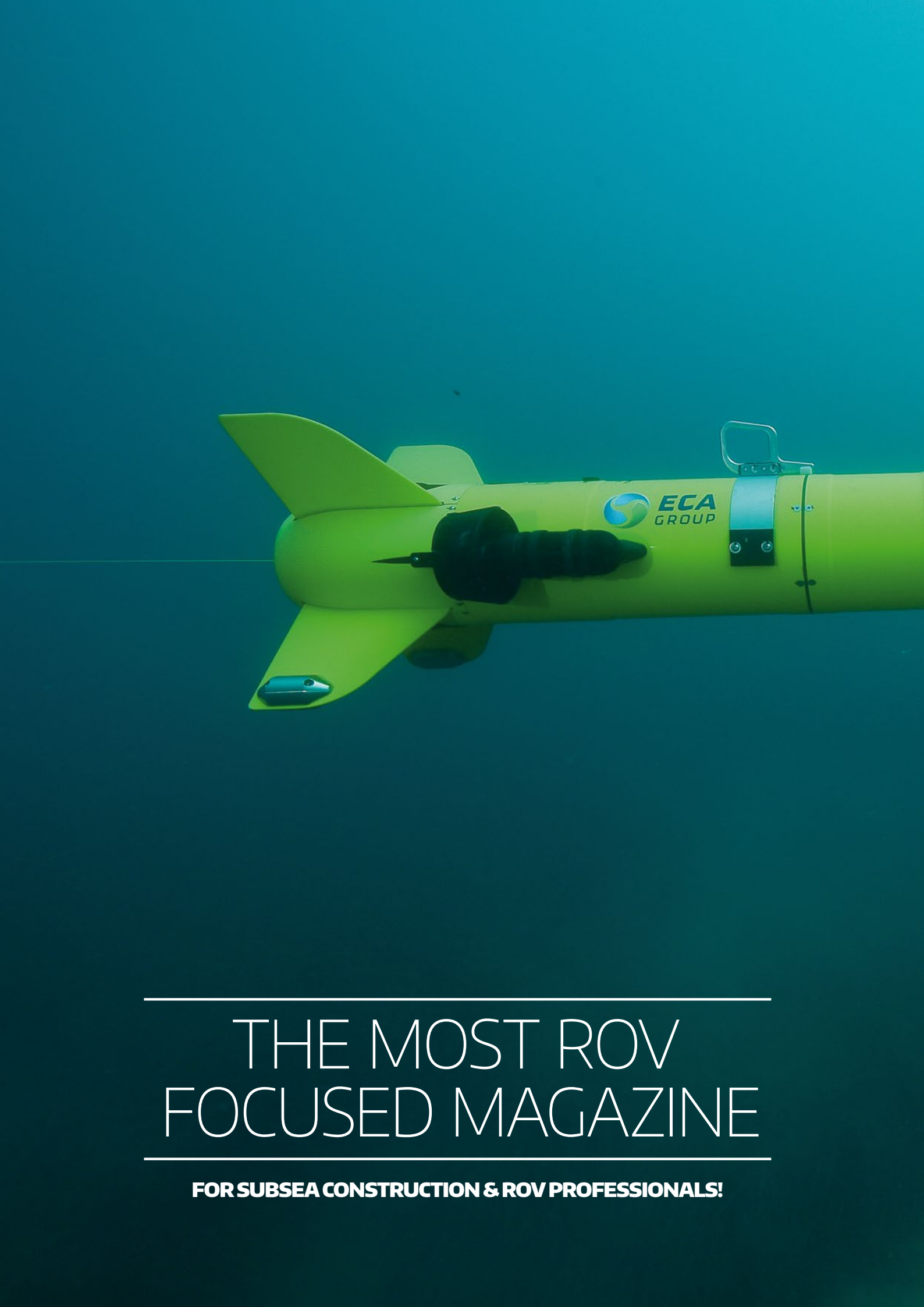

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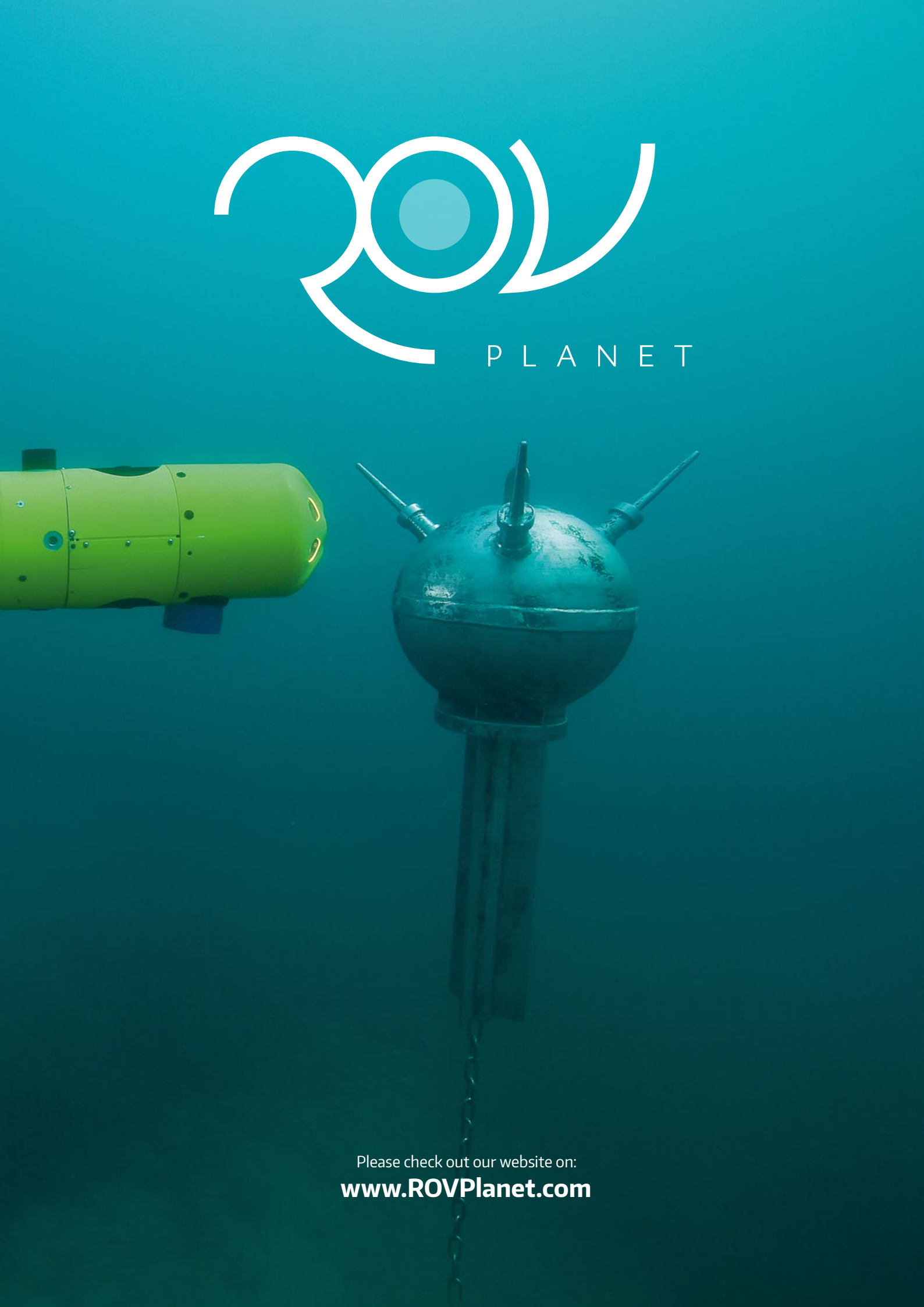
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ECA GROUP'S UMIS MCM SYSTEM MAKES OBSOLETE CONVENTIONAL MINE HUNTERS

UMIS is ECA Group brand new Mine Counter Measure (MCM) unmanned system able to carry out any MCM missions, using a collaborative system of surface and underwater robots, thanks to an advanced Command & Control System.

Delivering the UMIS system to the first customers in 2016, ECA Group's solution made conventional mine hunters obsolete. It has proven to be faster in fulfilling operations, more efficient, cost-effective and safe, as the crew is kept away from minefield.

Using conventional mine hunters on a minefield have indeed many drawbacks.

First, the high cost to reduce the ship's magnetic signature to a very low level. Secondly, the ship detects mines using a Hull Mounted Sonar (HMS) of which mine classification depends, on its range and resolution. ECA Group sonar expert Dr. Marc Pinto explains;

"Physics of sonar dictates that you can't have both range and resolution: long range sonars have poor resolution. High resolution sonars have very limited range. With conventional mine hunters, it is either required to approach and manoeuver close to the possible mine for a good classification, which is risky and time-consuming, or, the minehunter stays far from the targets, leading to a low resolution and a high probability to miss some mines, which is also a high risk".

In comparison, ECA Group's UMIS deploys Autonomous Underwater vehicles (AUVs) carrying the sonar and Unmanned Surface Vessels (USVs) which bring identification and disposal vehicles on the minefield, leaving the mothership away in a safe zone. UMIS manages a set of drones which cooperate autonomously into the dangerous area.

Courtesy of ECA Group

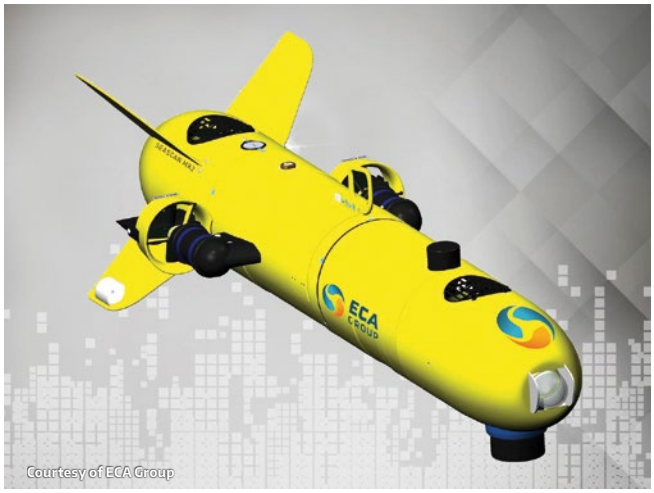
"It is proved that, operating in parallel, the UMIS system can divide by at least 3 , the time of missions, and comes with a higher efficiency and clearance rate." reports VADM (Ret.) Christian CANOVA, FRN, Undersea Warfare Expert and former NATO Maritime Command Deputy Commander.

UMIS system uses SEASCAN MK2 for identification and the K-STER C mine disposal system for neutralization and can be used collaboratively with the embedded Automatic Target Recognition (ATR) in A9-M AUV or A18-M AUV, to reduce the MCM Missions duration.

Courtesy of ECA Group

INSPECTOR MK2 USV

ECA Group's Unmanned Surface vehicles (USVs) are an essential component of UMIS, as it acts as an intelligent docking system for AUVs or ROVs, allowing them to be automatically deployed and recovered: it enables recharging and data download, as well as fast transits. The USV can be equipped with satellite, radio and WiFi for easier communications, as well as acoustic modem and short baselines for underwater communications and positioning. This allows underwater inspection and intervention to be supervised by an operator based on a safe spot. Last, the Unmanned Surface vehicles equipped with down-looking sonars are the ideal platforms for detection of in-volume mines as well as obstacles (such as nets) for safe AUV navigation.



Courtesy of ECA Group

The ECA Group has a full range of AUVs, spanning from the most compact A9 to the largest versions A272 and ALISTAR3000. They all share the same IT architecture, autonomous software and supervision interface.

The A9 range is a recent line of small AUVs of between 50kg and 120kg. Available since the end of 2012, they can be put into operation by two people without any particular method of launching the vehicle. The French Navy has been equipped with an A9 AUV since 2013. Three other countries purchased one in 2014. They are well suited to coastal and harbour surveillance.


Courtesy of ECA Group

The new A18 range comprises robots of 350kg to 650kg that can operate at depths of up to 3,000 metres. They represent ECA Group's new mid-range AUVs. They can be deployed from a light naval platform from 12m, using different launching and retrieval systems also offered by ECA.

Courtesy of ECA Group

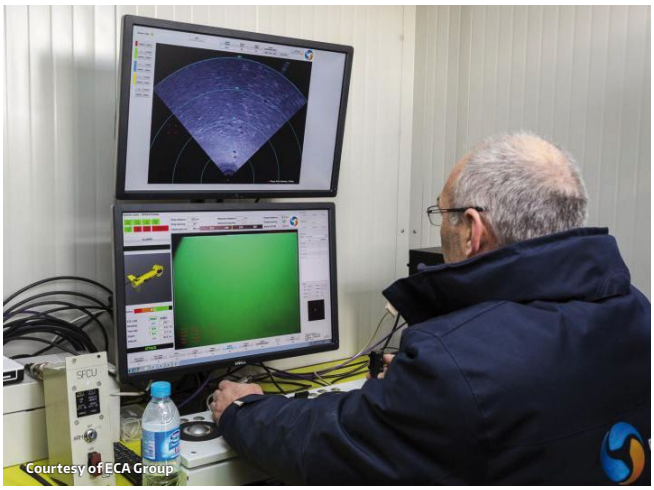
The A27 and ALISTAR3000 AUVs are the ECA Group's standard range. Developed between 2003 and 2013, they have substantial dive endurance (more than 30 hours) and great sensor-carrying capacity. They can be used in the most demanding operations. The French Navy uses the A27 AUV for hydrography and long-range underwater surveillance operations.

SEASCAN MK2

Seascan MK2 is a light weight self-propelled ROV dedicated to inspection missions. Its unique architecture ensures second to none performances in terms of hovering capability and stability in turbulent water. Easy to deploy from any kind of platform, the user friendly command and control software offers auto piloting functions to improve mission efficiency. Powered by a rechargeable battery, the Seascan MK2 takes benefit of the real time sensor data gathering through the optical fiber without the limitations of classical ROV towing its umbilical. Thus it will be preferred for harsh environmental conditions (strong current), in obstructed area where umbilical may be caught or for long range inspection (e.g. water pipe).

K-STER C

K-STER C vehicle is a light weight expendable mine disposal vehicle dedicated to mine warfare. It is fitted with a shape charge in a tilt-able head to aim at the target to dispose of. Its unique architecture ensures second to none performances in terms of hovering capability and stability in turbulent water. User friendly command and control software offers auto piloting functions.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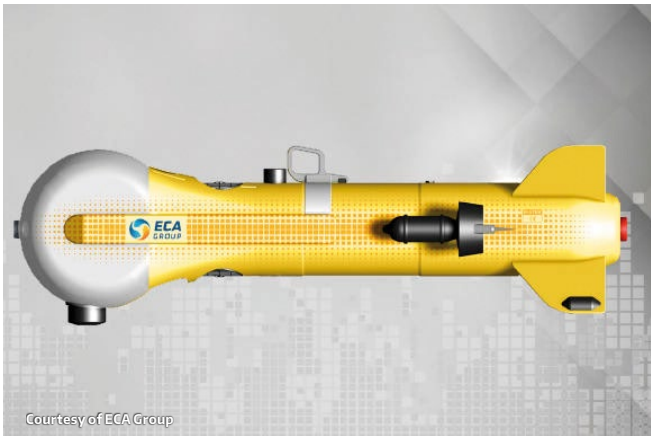

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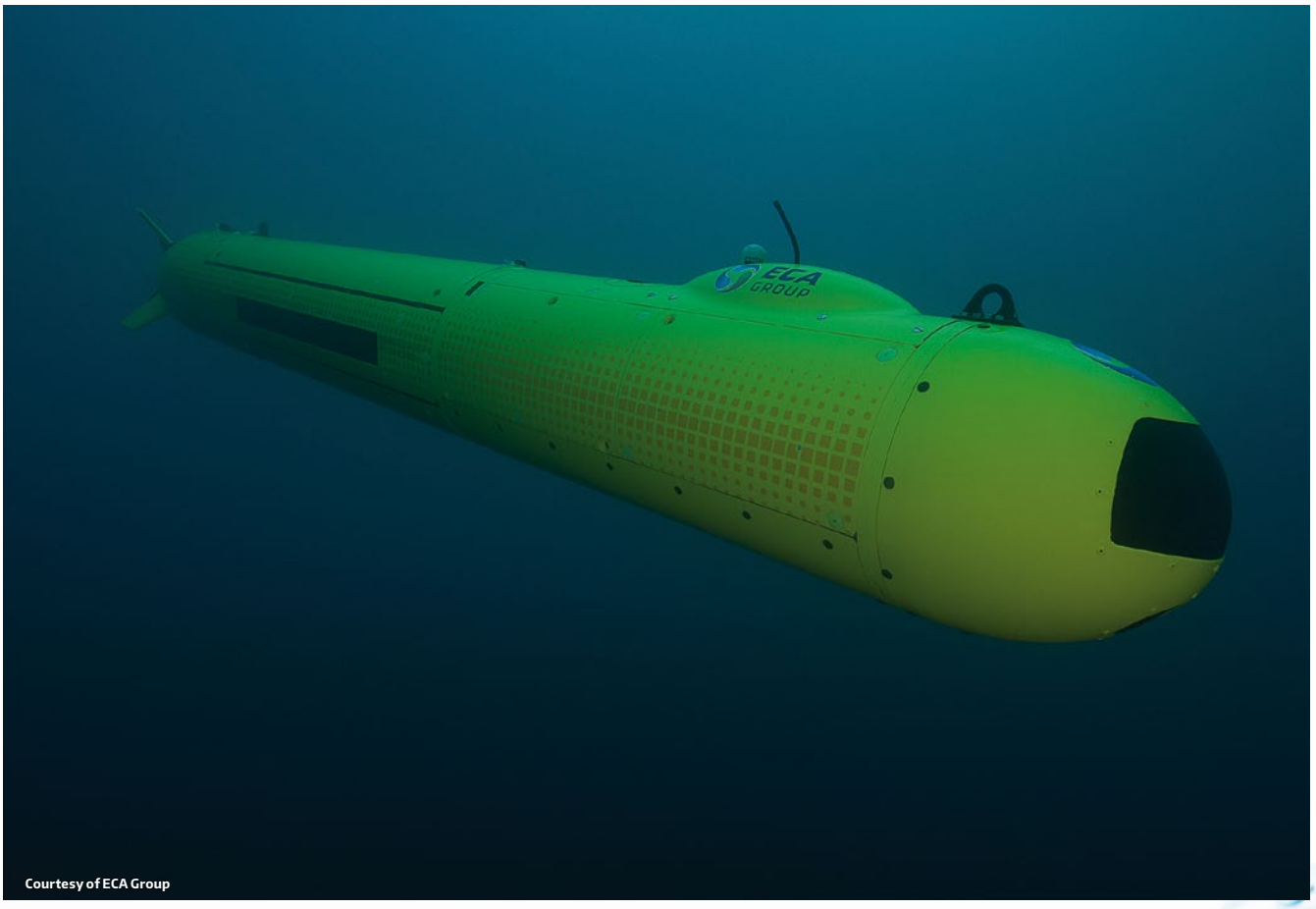

Courtesy of ECA Group