

July 2023



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# UNCREWED VEHICLE BUYERS' GUIDE

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## 2023



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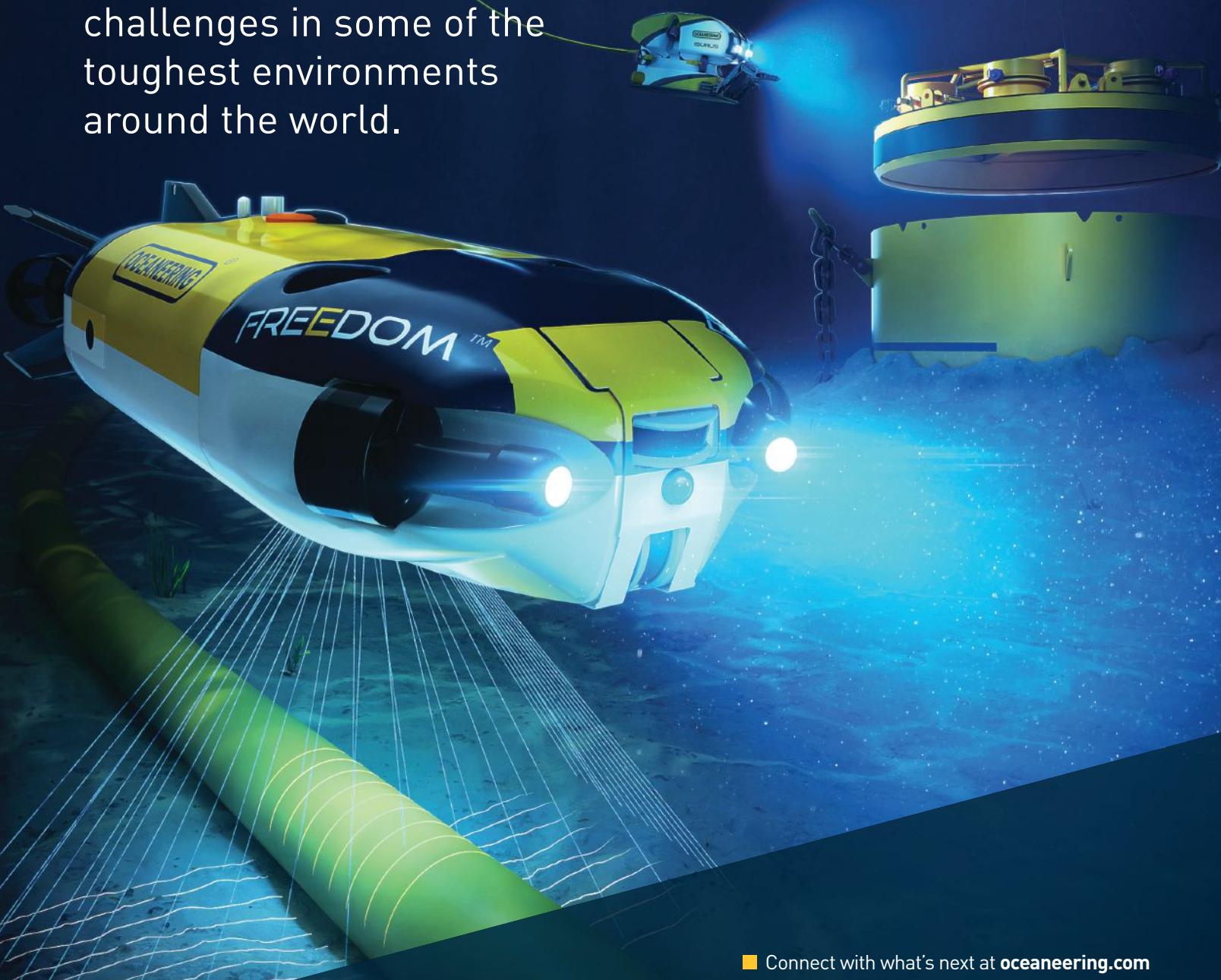
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# Uncrewed Vehicle Sensor Solutions

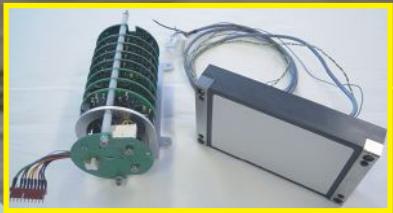
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**Imagenex Sensors**  
for Uncrewed Applications

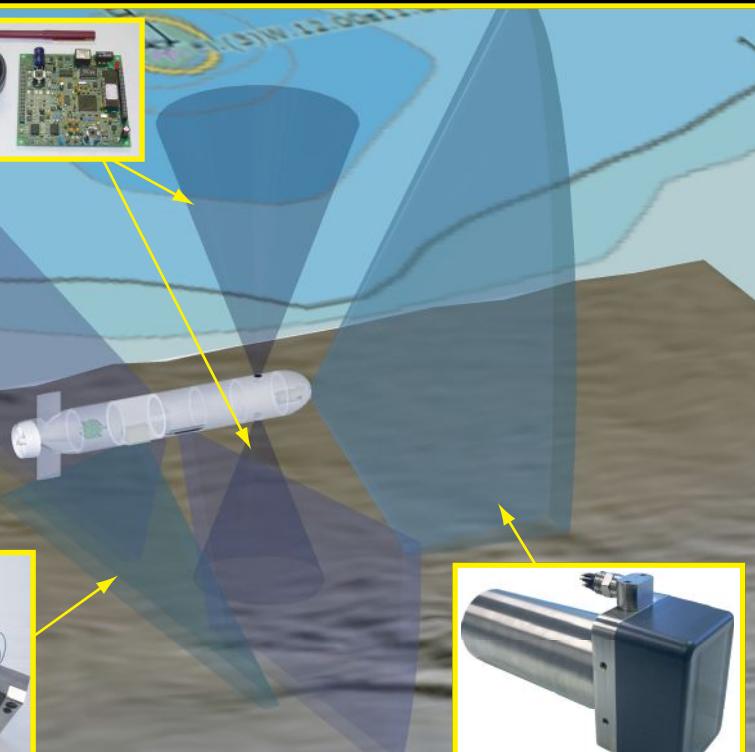
- Upward/Downward Looking Echo Sounder/Altimeter



- Sidescan Sonar



- Delta T Multibeam Sonar (Swath)



- Multibeam Obstacle Avoidance

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I M A G E N E X

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Have you been wondering why can't we fly ROVs underwater the same way we fly aerial drones in the air? We have too... So we got busy and solved it.

Now you can enjoy untethered operation in flooded confined spaces to increase the speed of submerged asset inspections and remove the risk of tether entanglements. Oh, and it can also perform as a top-of-the-line 8kg tethered ROV, too. You know, for those edge cases...

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running on chocolate.

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**Managing Editor**  
ED FREEMAN

**Editorial Team**  
HALEY MCQUEEN  
JENNA HOLLERAN

**Art Director**  
LISA D. FERRARI

**Production Manager**  
WHITNEY SCHWERIN

**Events Coordinator**  
KADESZA DSILVA

**Published by**  
Technology Systems Corporation

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LISA CHILIK  
Tel: 574-261-4215  
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Tel: +44 77 7601 7564  
[mking@tscpublishing.com](mailto:mking@tscpublishing.com)

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## SMART SUBSEA SOLUTIONS

Delivering data in most adverse conditions: underwater acoustic modems with advanced communication technology and networking

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# THE FUTURE OF OCEAN EXPLORATION IS IN SAFE HANDS



**BY ED FREEMAN**  
Managing Editor, ON&T

In June, ocean technology took center stage in arguably one of the more frenzied mainstream news stories of the year—the search for answers following the sudden disappearance of *Titan*, OceanGate's ill-fated manned submersible. We now know that a catastrophic event took place on descent to the RMS *Titanic*, the evidence of which was gathered by a stalwart of deep-sea intervention, the ever-dependable work class ROV.

Within hours of deployment, Pelagic Research Services' *Odysseus 6K* pinpointed the sub's debris field scattered across the seabed 1,600 ft from the *Titanic*'s bow, shattering speculation that this was still a rescue mission and a race against fast-diminishing oxygen levels.

## RISK-REWARD EXPLORATION

For global audiences from the ocean community and beyond, the tragic episode spotlighted the multi-faceted nature of ocean exploration: the human impulses; the financial realities; the regulatory requirements; the complex orchestration of people and technologies; and, of course, the inherent risks.

Understandably, the event also triggered contentious discussion, from whether tourist dives to fabled—and already well examined—shipwrecks constitute the true spirit of subsea exploration, to the need for more stringent jurisdiction of deep-sea activities in international waters.

Probes into the safety of manned submersibles will inevitably linger, but the brilliant engineering minds and visionaries of this industry will continue to demonstrate that, with unwavering compliance to established mitigation practices, these vehicles are failsafe.

Risk is baked into every aspect of at-sea operations; different offshore activities come with innate challenges, often in highly unpredictable and hazardous waters. However, these concerns are abated by advances in ocean tech, not acerbated by isolated incidents. Therefore, as nations push forward with plans to build safe and sustainable blue economies, the fast-expanding role of smart marine technologies and systems designed to significantly mitigate HSSE exposure is all but guaranteed.

## AN ORCHESTRA OF UNCREWED ASSETS

It is hard to overstate how pivotal the growing acceptance and application of uncrewed vehicles will be in this realiza-

tion. Whether operating above and below the waterline, and often in tandem, an emerging and cooperative ecosystem of uncrewed surface vehicles (USVs), autonomous underwater vehicles (AUVs), ROVs, crawlers, and other towed bodies sets out a practical path towards achieving more with less: more purpose-led, sustainable ocean exploration and discovery; less operational cost, risk to personnel, and CO<sub>2</sub> impact.

When it comes to the deployment of such technologies in high-risk scenarios, few are more extreme than the marine conditions whipped up by hurricanes as they travel over open water. In late June, Saildrone announced that it is deploying a record 12 USVs into the Tropical Atlantic and Gulf of Mexico this summer in support of NOAA's ongoing research to advance hurricane forecasting.

ON&T was onsite at NOAA's Aircraft Operations Center in Lakeland, FL for the third-annual Atlantic Hurricane mission kickoff event where all the tools—both uncrewed and crewed—were on full display. With more remote sensing assets being deployed year on year, this incremental integration of uncrewed vehicle technologies, in this case USVs and drifters working in unison with an orchestra of airborne assets, is indicative of how ocean technologists extend our reach, not our risk.

Other headlines this year, many chronicled in ON&T's most recent edition of *Uncrewed Waypoints*, include significant investments in AUVs of all sizes and hint of a future of subsea resident systems.

The payout for all stakeholders, regardless of industry or sector, is something of a paradigm shift in which leaner, greener, and ultimately safer ways of working at sea means keeping more personnel on shore.

## UVBG 2023

ON&T's Uncrewed Vehicle Buyers' Guide (UVBG), now in its ninth year, is a timely snapshot of just how far the uncrewed vehicle industry has come in recent years.

In these pages you will not only find comprehensive listings of the major manufacturers and operators of the latest vehicles available but also a series of insightful spotlight articles that tap into the thought leadership steering this exciting and evolving marketplace.

Welcome to the 2023 UVBG.

# AUTONOMOUS MISSIONS UNLOCKED

## EFFORTLESS OPERATOR CONTROL

Seamlessly switch between autonomous navigation and manual control to adapt to different underwater conditions.



## INTUITIVE WAYPOINT VISUALIZATION

Easily plot, adjust, and visualize waypoints on a convenient map interface.

## ADVANCED DATA CAPTURE

Integrate sonar, video, and water quality sensors with our BRIDGE software, while the ROV autonomously follows the planned mission route.



Experience the power of fully autonomous missions with Deep Trekker's mission planner. Simply set waypoints by dragging and dropping or uploading preset coordinates, and watch as your ROV effortlessly follows the designated path, recording data along the way.



PHOTON ROV



PIVOT ROV



REVOLUTION ROV

 DEEP TREKKER™



deeptrekker.com

# NEW MINI-ROV SET TO DISRUPT UNDERWATER INSPECTIONS

» EXRAY performing a tank inspection. (Image credit: Hydromea)

In the rapidly expanding market of portable ROVs, a one-size-fits-all approach simply won't cut it when it comes to tackling challenging underwater inspection tasks. That's where the Swiss-made EXRAY™ comes in—a professional robotic inspection system that redefines the standard for underwater inspections.

## EXCEPTIONAL PERFORMANCE

The EXRAY ROV sets itself apart with its outstanding specifications. Weighing a mere 8 kg (18 lbs) and having a slim profile of just 13 cm (5 in) in height, this robot is a powerhouse. Equipped with 8 patented hubless thrusters that allow for extra-precise control, it offers 6 degrees of freedom maneuverability. The EXRAY can operate for up to 6 hours on a single swappable battery. With a built-in 4K camera, sonar sensors and compatibility with a growing range of payloads, the EXRAY joins the ranks of other top performing ROVs on the market.

However, what truly sets it apart, is its development team's commitment to user experience and intuitive navigation. The goal is to make operating the robot as easy as possible, right out of the box, minimizing the need for extensive training even in the most demanding industrial environments.

## EXTENDING LIMITS: TETHER-FREE EXPLORATION

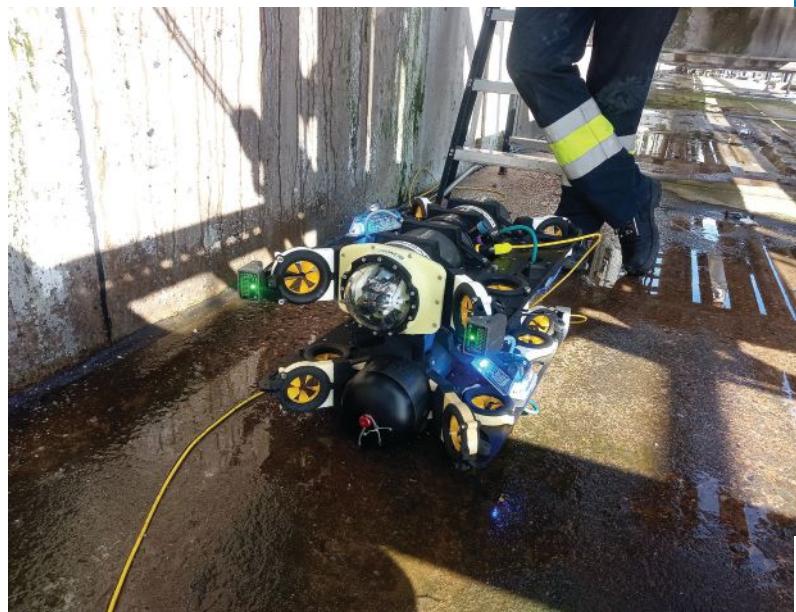
Breaking new ground in the realm of mini-ROVs, the EXRAY offers an extension option with a flyout robot. This detachable companion can be fully controlled remotely, complete with live HD video streaming, eliminating the risk of entanglement. The topside control station enables the pilot to place the tethered ROV in station-keeping mode, where it acts as a communication relay for the flyout as well as a third eye providing an additional perspective. With a quick manual switch, the pilot can effortlessly alternate between the tethered and untethered robot.

The flyout can be equipped with a metal thickness probe featuring A-scan functionality and is capable of hosting a variety of other payloads, just like its tethered twin. To operate the flyout wirelessly, Hydromea has developed a proprietary wireless communication system that utilizes blue light for data transmission. Blue light enables the wireless range of up to 30 m (100 ft) in confined flooded spaces in addition to the tether length of the relay ROV.

## THE FUTURE OF UNDERWATER INSPECTIONS

The EXRAY is the result of extensive research and collaboration with over 100 industry experts. It encompasses essential qualities such as ease of use, robustness, competitive pricing, versatility, and, above all, an impeccable fit for specific use cases. By pushing the boundaries of ROV capabilities and introducing game-changing features like the wireless flyout robot and advanced visual and sonar data management, EXRAY is revolutionizing the underwater inspection landscape for water storage, hydropower and other industrial water market sectors.

For more information, visit: [www.hydromea.com](http://www.hydromea.com).



» EXRAY received DNV class for inspections on floating O&G platforms. (Image credit: Hydromea)

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2023

# OBSERVATION ROVs



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SCIENCE



SEABED MINING



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**UNCREWED  
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## OBSERVATION ROVs

### AC-CESS

WWW.AC-CESS.COM | info@ac-cess.com



#### AC-ROV 100

The AC-ROV is the most capable and portable underwater inspection system on the market. A complete system comes in one rugged waterproof hand carry case with an all up weight of just 18 kg. It defines the "HAND CARRY" single operated class in underwater inspection systems. (Customizable)



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### BLUEROBOTICS

WWW.BLUEROBOTICS.COM  
Sales | sales@bluerobotics.com



#### BLUEROV2

Ocean research, exploration, and adventure are all made easily accessible by our flagship product, the BlueROV2. It provides the capabilities of a high-end commercial mini ROV at the price of the most basic commercial ROVs, making the BlueROV2 the world's most affordable inspection and research-class subsea vehicle. (Customizable)



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#### AC-ROV 3000

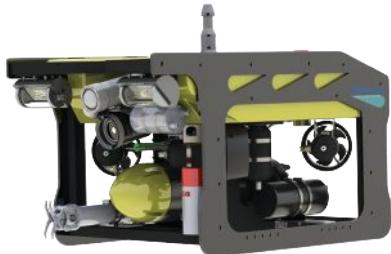
The AC-ROV 3000 is the first ever deep ocean micro ROV. To maximize its capability it comes fully packaged with a Tether Management System (TMS) allowing it to operate as a 3,000 m depth rated "Fly-Out" from many types and size of host submersible.



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### ARGUS REMOTE SYSTEMS AS

WWW.ARGS-RS.NO  
Sales | sales@argus-rs.no



#### ARGUS MINI

Observation class ROV that can be fitted with an open/close or a 5 function manipulator. (Customizable)



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### BLUEYE ROBOTICS

WWW.BLUEYEROBOTICS.COM | Sales | contact@blueye.no



#### BLUEYE X3

The ROV providing you with endless possibilities. 3 Guest Ports enabling integration of different external equipment. (Customizable)



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#### BLUEYE PRO

The ultimate tool for professionals. Quick and user-friendly inspection of your assets below the surface. (Customizable)



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## BLUEYE ROBOTICS

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### BLUEYE PIONEER

Groundbreaking technology to get your eyes below the surface. The Blueye Pioneer underwater drone offers exceptional user experience and performance.



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## BOXFISH

WWW.BOXFISH.NZ

info@boxfish.nz



### BOXFISH LUNA

The only next-generation professional cinematography ROV integrating a full-frame camera capable of shooting up to 4K ProRes RAW video at 30p and 50MP stills. The actively stabilized vehicle can travel and orientate itself in any direction, ensuring super-smooth and creative shots. The surface console also enables precise management of camera settings.



## DEEP OCEAN ENGINEERING, INC.

WWW.DEEPOCEAN.COM

Sales | sales@deepecan.com



### PHANTOM® L-SERIES

The Phantom® L-Series is an inspection-class underwater remotely operated vehicle, designed for use in numerous applications across a spectrum of industries. The Phantom® L6 is designed with four vectored horizontal and two vertical Tecnadyne® thrusters, which provide significant control and propulsion in current.



## DEEP OCEAN ENGINEERING, INC.

WWW.DEEPOCEAN.COM

Sales | sales@deepecan.com



### PHANTOM® T-SERIES

The Phantom® T-Series ROV provides powerful maneuverability, incorporates an open architecture, integrates with a wide variety of sensors and is hand-built on a rugged, resilient, non-corroding polypropylene chassis that can accommodate heavier payloads. In addition, the Phantom® T5 Defender package is engineered to include navigation software, an Inertial Navigation System (INS), Doppler Velocity Log (DVL), GPS, imaging sonar, a single-function manipulator, and our patented underwater breech for explosive ordinance disposal. (Customizable)



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## DEEP TREKKER INC.

WWW.DEEPTREKKER.COM | Sales | sales@deeptrekker.com



### DTG3

DTG3 ROV is built for quick deployment and reliable underwater surveys and inspections. With a 200 m (656 ft) depth rating, full HD camera (270° view), and up to 500 m tether length, it boasts a durable aluminum coating and compatibility with industry-specific add-ons like grabber claws, water samplers and more. (Customizable)



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CONSTRUCTION

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DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

## PIVOT

Featuring six powerful thrusters, lithium-ion batteries for portability, 4K camera (220° FOV), 305 m (1,000 ft) depth rating, bright LED floodlights, and up to 500 m (1,640 ft) tether. Built tough with anodized aluminum, carbon fiber, stainless steel and seamless integration with add-ons and sensors, such as sonar, USBL, and DVL systems. (Customizable)



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## OBSERVATION ROVs

### DEEPINFAR OCEAN TECHNOLOGY

WWW.DEEPINFAR.COM | Sales | info@deepinfar.com

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& LIGHTING

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& TRACKING

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CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS



#### HAITUN ROV

The "HaiTun" series is an observation and light work class remotely operated vehicle (ROV) developed by Deepinfar.Ltd. The "HaiTun" weighs ≤ 150 kg and is suitable for working in a wide water environment. Compared with other small underwater vehicles, it has a strong payload capacity and is less affected by currents and waves. The high stability and flexibility of "HaiTun" makes it suitable for offshore applications. (Customizable)



#### HETUN ROV

The "HeTun" series is an entry-level observation class which is economical and convenient, and is suitable for most relatively calm waters.



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#### JIANGTUN ROV

Compared with "HeTun", the "JiangTun" series of remotely operated vehicle have a more advanced configuration and are more expandable. They have accumulated rich application cases in various fields such as salvage, water resources & hydropower, marine pasture, and ocean scientific research. Which show high stability in customer site. (Customizable)



### DEEPINFAR OCEAN TECHNOLOGY

WWW.DEEPINFAR.COM

Sales | info@deepinfar.com



#### WHITESHARK MINI ROV

"White Shark" Mini ROV is a compact remotely operated vehicle. Although it's small size and light weight, it has a large field of view. It can be easily carried or deployed by one person. The depth rating is up to 100 meters. It can be widely used in hull inspection, aquaculture farms, education and research applications, underwater entertainment, etc. (Customizable)



### EPRONS ROV LTD.

HTTPS://EPRONS.LV/EN | info@eprons.eu



#### ALPHAROV D150

EPRONS produces a series of modern digital surface powered underwater remotely operated vehicles (ROV models) designed for observation, inspection, exploration or search & rescue missions. Working depth till 150 meters. Tether length 150 meters (up to 300 m). Full HD 1080P 2MP Color camera. 4 Brushless thrusters: 2 Horizontal; 2 Vertical; 1 Lateral.



#### ALPHAROV D200

Working depth till 200 meters. Tether length 200 meters (up to 600 m). Full HD 1080P 2MP Color camera. 5 Brushless thrusters: 2 Horizontal; 2 Vertical; 1 Lateral.



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# POWERING AUTONOMY AT SEA

## DRIX MULTI-MISSION UNCREWED SURFACE VESSEL

Faster and better data gathering

- » Unrivaled platform stability and data gathering
- » Remote-controlled and supervised autonomous operations
- » From coastal to offshore environments

**exail**

## OBSERVATION ROVs

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#### ALPHAROV D300

Working depth till 300 meters.  
Tether length 300 meters (up to 1,200 m).  
Front: Color Full HD and B/W cameras.  
Rear: additional color/BW camera Full HD 1080P 2MP. 7 Brushless thrusters: 4 Horizontal; 2 Vertical; 1 Lateral. Vectored thrusters configuration available for this model.



VC&L



#### ALPHAROV D500

Working depth till 500 meters.  
Tether length 500 meters (up to 5,000 m).  
Front: Color Full HD and B/W cameras.  
Rear: additional color/BW camera Full HD 1080P 2MP. 7 Brushless thrusters: 4 Horizontal; 2 Vertical; 1 Lateral. Vectored thrusters configuration available for this model.

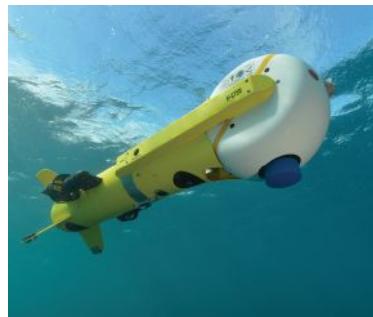


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### EXAIL

[WWW.EXAIL.COM](http://www.exail.com)

Antony Penn | sales.robots@exail.com



#### K-STER

The K-STER vehicle is a lightweight expendable mine disposal vehicle dedicated to underwater mine warfare missions. It allows remote neutralization of a sea mine while keeping operators at safe distance. The user-friendly command and control software offers auto piloting functions and allows users to conduct the operation safely from deployment to the final firing. It is fitted with a shape charge in a tiltable head to accurately aim at the target to be disposed of. (Customizable)



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### EXAIL

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Antony Penn | sales.robots@exail.com

### HR WALLINGFORD

[HTTPS://EQUIPIT.HRWALLINGFORD.COM](https://equipit.hrwallingford.com) | Peter Watchorn | P.Watchorn@hrwallingford.com



#### ARCBOAT

The ARCboat is a remote controlled boat used to collect river and estuarine data including flow, depth and suspended sediment concentrations. It was developed in partnership with end-users to meet their exact needs. The boat can carry a variety of Acoustic Doppler Current Profilers (ADCP) and other instruments. (Customizable)



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#### ARCBOAT LITE

The ARCboat Lite is optimized to carry out bathymetric and river current surveys in lower flow environments. With a robust, lightweight hull, it has been designed for use by a single person. It can reach more of a survey site than previously possible, thanks to high maneuverability and shallow draft. (Customizable)



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# ACROSS SEA AND LAND



The only Autonomous, Underwater Ground Vehicle (AUGV) on the market, Bayonet Ocean Vehicles are easily customized with environmental, oceanographic, and industry specific payloads for commercial and offshore energy applications.

**AUTONOMOUS UNDERWATER GROUND VEHICLES**  
**Military | Offshore Energy | Survey & Inspect**

[bayonetocean.com](http://bayonetocean.com)

## OBSERVATION ROVs

### HYDROMEA

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Sales | sales@hydromea.com



#### EXRAY WIRELESS ROV

A new innovative professional system consisting of two portable ROVs: a top-of-the-line tethered ROV carries a flyout ROV for inspections of highly complex submerged infrastructure. With the wireless range reaching 30 m and a 4K camera, the 6DOF flyout gets you further out without entanglement risks. Best for confined spaces. (Customizable)



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### JW FISHERS MFG. INC.

WWW.JWFISHERS.COM | Brian Fisher | info@jwfishers.com



#### SEAOTTER-2 ROV

For over 53 years, JW Fishers has specialized in the design and manufacture of underwater search equipment. Their product line includes underwater metal detectors, cable trackers, pipe trackers, video systems, lights, magnetometers, sonars, ROVs, and pingers. Fishers' ROVs are in use by commercial diving companies, universities, police & military worldwide.



#### SEALION-2 ROV

For over 53 years, JW Fishers has specialized in the design and manufacture of underwater search equipment. Their product line includes underwater metal detectors, cable trackers, pipe trackers, video systems, lights, magnetometers, sonars, ROVs, and pingers. Fishers' ROVs are in use by commercial diving companies, universities, police & military worldwide.



### L3HARRIS

WWW.L3HARRIS.COM | Giuseppe Ranieli | Calzoni.Sales@L3Harris.com



#### AGEOTEC ROV SIRIO

Leveraging more than two decades experience in coastal and offshore surveying and construction characterizing the AGEOTEC product line, the ROV Sirio presents itself as the first model of L3Harris' wide range of remotely operated vehicles. Sirio features a modular chassis manufactured in high impact resistant polypropylene, totally maintenance-free and non-corroding. (Customizable)



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### MARINE IMAGING TECHNOLOGIES

WWW.MARINEIMAGINGTECH.COM | David Ullman | david@marineimagingtech.com



#### PIXEL

The original Cinema class ROV, Pixel boasts live stream imaging and control of forward facing 4K and HD video and 45mp stills along with 4K video downward facing. Conceived by a cinematographer, Pixel's original purpose was to be the ideal system for subsea documentaries. She has since expanded into research and exploration, adding photogrammetry to her list of skills. (Customizable)



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## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE | Niklas Becker | n.becker@mariscope.de



### MS2

Evolved, depth rated to 500 meters. 3.5 kg and 4 thrusters. Hydro dynamic shape in a stainless steel frame (AISI 316L) manually TIG-welded, equipped with high end components (Full HD Cam with laser pointers and others) and customizable accessories, offers maximum operating stability, high maneuverability and easy maintenance. Lifetime warranty. (Customizable)



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### PEEWEE 100

The world's first hybrid of its type, combination between a ROV and a towed vehicle. Robust stainless steel TIG hand welded frame but easy to carry by hand, incorporates a Full HD camera and with a pair of high output LED spotlights, both installed on a tilting system. Lifetime warranty. (Customizable)



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## OCEANBOTICS INC.

WWW.OCEANBOTICS.COM

Sales | wprice@oceanbotics.com



### SRV-8 MDV

The SRV-8 MDV (Mine Disposal Vehicle) is the latest addition to Oceanbotics' Special Purpose Vehicle Division. This field-tested underwater ROV will detect and eliminate explosive mine threats quickly and efficiently, utilizing ECS Special Projects' Viper MDS technology for neutralizing improvised explosive devices (IEDs). The SRV-8 MDV's ease of use and adaptive software will allow commercial and naval EOD teams to locate and neutralize mine threats quickly. (Customizable)



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### TASKS

#### OBS OBSERVATION

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#### CON CONSTRUCTION

#### INT INTERVENTION

#### B&T BURIAL & TRENCHING

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#### VC&L VIDEO CAMERA & LIGHTING

#### NDT NON- DESTRUCTIVE TESTING

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#### CD CLEANING DEVICES

#### VSK VEHICLE STATION KEEPING

#### WT WORK TOOLS

## OUTLAND TECHNOLOGY

WWW.OUTLANDTECH.COM | Sales | sales@outlandtech.com



### ROV 500

1000 ft (300 meter) rated. With LED lights. The ROV-500 utilizes brushless DC flooded thrusters. Outland designed a control system around these thrusters to maximize the power, giving the ROV-500 a high thrust to weight ratio. Tilting Camera forward is 1080p High Resolution. Standard system ships with 330 ft (up to 1000 ft cable max).



### ROV 1000

Brushless DC, Magnetically Coupled Thrusters. Easy deployment and operation. All digital control of camera, lights, thrusters and grabber.



## PLIANT ENERGY SYSTEMS

WWW.PLIANTENERGY.COM

Pietro Filardo | filardo@pliantenergy.com



### C-RAY ROV

Pliant Energy Systems anticipates the release of its C-Ray class vehicle for sale in 2022/3. The C-Ray ROV utilizes the company's unique, proprietary undulating drive instead of propellers. The fins undulating drive give the vehicle superior maneuverability and the ability to pass through debris-filled water or mud. C-Ray has the ability to move across solid surfaces and can make the transition from water to land and it can glide over solid ice using the same fins it uses for swimming and crawling. (Customizable)



OBS | VC&L | A&T | VSK

## OBSERVATION ROVs

### SAIPEM

[HTTPS://WWW.SAIPEM.COM/EN](https://www.saipem.com/en) | media.relations@saipem.com



#### FLATFISH

FlatFish is an advanced underwater inspection drone, designed, industrialized and manufactured by Saipem based on a research and development cooperation agreement signed under the ANP program initially between Shell and Senai CIMATEC. FlatFish aims at inspecting and monitoring complex subsea infrastructures in an innovative and safe manner, from shallow waters down to 3,000 mwd. The drone features an advanced AI-based control system and navigation features combined with state-of-the-art inspection capabilities.



SUR | VC&L | A&T | NDT



#### HYDRONE-R

Hydrone-R is a drone capable of both ROV (remotely operated vehicle) and AUV (autonomous underwater vehicle) functionalities: It is designed to be remotely operated from shore (as an ROV) and it can execute autonomous inspection missions (as an AUV). The vehicle can operate subsea for more than a year up to a water depth of 3,000 m below the sea and execute light intervention tasks and autonomous inspections. Its battery system provides 12 hours of autonomy and an inspection span of more than 10 km.



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#### HYDRONE-W

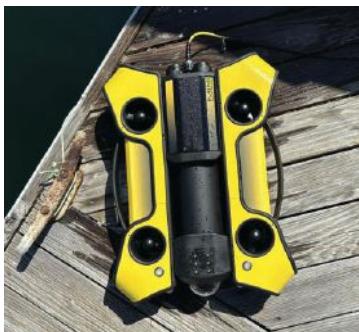
Hydrone-W: an all-electric Work Class ROV that is designed to operate in traditional ROV mode or to remain as a subsea resident tethered to a subsea base; it is designed to be fully remote controlled from an onshore control center. The Hydrone-W may also support our subsea construction activities carrying out tasks relating to subsea construction, pre-commissioning and commissioning.



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### SEADRONE

[HTTPS://SEADRONEPRO.COM](https://seadronepro.com)



#### SEADRONE MINI

SeaDrone MINI is a professional ROV for non-technical users. Realize major productivity gains with a system that you can carry and deploy in minutes. Maximize your uptime with easy-to-service modular components. Dive fast using SeaDrone's Top Gun Mode and operate in 3 knots crosscurrents. The MINI's control system actively stabilizes the vehicle and allows you to capture crisp and stable footage. The perfect general ROV to operate beyond the reach of divers. (Customizable)



SUR | VC&L | A&T | NDT



#### SEADRONE XROV

Introducing SeaDrone XROV. The smartest and fastest mini ROV in the world. The XROV comes standard with a Jetson Xavier NX making it ideal for high-performance compute and AI. Capture accurate data of your underwater assets with 4k stereo cameras. With a 600V tether architecture, the XROV can operate all day and perform at full power at longer tether lengths. All packed into an elegantly efficient design that is easy to ship. (Customizable)



SUR | VC&L | A&T | NDT

## SEAMOR MARINE LTD.

WWW.SEAMOR.COM | Robin Li | sales@seamor.com



### STEELHEAD ROV

The STEELHEAD inspection-class ROV is a portable, lightweight and stable underwater system that is easily operated through intuitive flight controls. A small profile allows this vehicle to inspect confined spaces and be easily stowed. The compact STEELHEAD is easily deployed and recovered from small vessels and docks—no need for hoists or cranes. (Customizable)



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## SRS|STRATEGIC ROBOTIC SYSTEMS

WWW.SRSFUSION.COM | Nick Devine | info@srsfusion.com



### FUSION

The Next Generation UUV-FUSION is an expeditionary ROV with a bespoke suite of high-end sensors delivering a highly capable and intelligent system. A self-contained (no generator required) system augmented by clever automation and supervisory control through an unparalleled, intuitive user interface establishes a new benchmark in UUVs.



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### TASKS

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📞 +886-4-3502-4890

🏡 www.dwtekmarine.com

## OBSERVATION ROVs

### SUBSEA TECH

WWW.SUBSEA-TECH.COM | Gregory Maurin | gregory.maurin@subsea-tech.com



#### MINI-ROV GUARDIAN

The Guardian Mini-ROV is a 150 m depth rated ultra-portable underwater inspection robot equipped with 4 horizontal and 1 vertical thruster. Fitted with 2 high resolution color video cameras, one on pan&tilt, and LED lighting, it has been especially designed for long range missions (> 400 m). Thanks to an ancillary plug, various accessories such as sonars, gauges and manipulators can easily be mounted on the Guardian. (Customizable)



OBS | VC&L | A&T



#### MINI-ROV OBSERVER

Observer is fitted with 2 high resolution colour video cameras, one on pan&tilt, and LED lighting. Embedded batteries allow 4h autonomy and operation in the most remote areas down to 150 m depth. Thanks to an ancillary plug, various accessories such as sonars, gauges and manipulator can easily be mounted on the Observer.



OBS | VC&L | A&T



#### MINI-ROV TORTUGA

The Mini TORTUGA is a 300 m depth rated underwater inspection robot inspired from the Tortuga ROV. Built on the same principles and following similar form factor, the Mini-Tortuga is lighter and smaller than the standard Tortuga. Each one of the 4 horizontal thrusters develops a 2.5 kgf thrust and is manually adjustable to preset orientation configurations (vectored, in line, lateral). This system allows operating the ROV in strong current conditions up to 3 knots, regardless of the direction. (Customizable)



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### THYSSENKRUPP MARINE SYSTEMS

WWW.THYSSENKRUPP-MARINESYSTEMS.COM/EN | marinesystems@thyssenkrupp.com



#### MUM

The XLUVU is composed of almost freely configurable base and mission modules, enclosed by a hydrodynamic casing. The modules are designed as ten- or twenty-foot standard containers, making their transportation and assembly effortless. The combination of base and mission modules enables MUM to fulfil different types of missions as well as to scale its capabilities in endurance or payload capacity. (Customizable)



# DIGITAL VIDEO RECORDING & INSPECTION SYSTEMS

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Digital Edge Subsea is a world leader in offshore digital video recording (DVR) and inspection systems.

Digital Edge Subsea develops and manufactures DVR products for use throughout the offshore oil and gas industry including diving, remote operated vehicle (ROV) and topside operations.

Our EdgeDVR is currently used worldwide by most of the major ROV and diving contractors.

The EdgeDVR is an essential part of any ROV system and can be integrated into both work-class and eyeball ROV systems, it's simple to use and full of very useful features. There are currently over 500 units in the field with a truly established proven history of reliability.



# DIGITAL EDGE SUBSEA

[www.digitaledgesubsea.com](http://www.digitaledgesubsea.com)

## OBSERVATION ROVs

### UNDERWATER ROBOTICS LTD.

WWW.GNOMROV.COM | info@gnom-rov.com



#### GNOM BABY

The ROV GNOM Baby is a micro sized vehicle that has all the main features inherited from larger underwater systems. The vehicle combines low cost with the full set of GNOM capabilities.



#### GNOM STANDARD

The GNOM Standard is a basic model of compact ROVs GNOM. It has small size, thin umbilical cable and very high maneuvering capability which allows operating in hard-to-reach places including inside sunken wrecks.



#### SUPERGNOM

The most advanced model SuperGNOM can be equipped with the manipulator (grabber), scan sector sonar (Micron TriTech or analogue) and USBL positioning system. More powerful thrusters & additional illumination are installed on this ROV. It can be modified for operation at depths up to 200 m.



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### VIDEORAY

WWW.VIDEORAY.COM | Sales | sales@videoray.com



#### MISSION SPECIALIST PRO 5

The VideoRay Mission Specialist Pro 5 configuration is designed for speed and efficiency, weighing in at 11.8 kg (26 lb). The three-thruster system has forward speed of over 4.4 knots, and utilizes a system of interchangeable, modular components residing on a single, intelligent network. The Pro 5 is designed to handle missions with size, space, weight, and deployment speed constraints, such as infrastructure inspections beyond the reach of divers, search & recovery, and exploring the ocean floor up to 305 m. The Pro 5 builds on the strengths of the now discontinued Pro 4, with more thrust, longer tether lengths, higher resolution video, and the advantages of the MSS modular systems.



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[SeaRobotics.com](http://SeaRobotics.com)



» Depth rated to 1,000 m, the Mission Specialist Defender is VideoRay's largest inspection-class configuration, powered by 7 thrusters. (Image credit: VideoRay)

VideoRay underwater robotic systems dramatically reduce the time, cost, and environmental impact of wind monopile maintenance, while also improving the safety of these offshore missions. These small yet powerful vehicles are designed to carry heavy payloads and tools while navigating tight spaces that larger work-class vehicles cannot access, making them the trusted tool of choice for large and small energy production operations worldwide.

#### PARTNERING WITH CSPECT

CSpect specializes in the inspection of offshore wind monopile and wind turbine foundations in the North Sea, servicing the largest global renewable energy contractors. CSpect was looking for a reliable partner that could provide a mobile solution to conduct underwater wind turbine jacket inspections without the need for a larger work-class vehicle and an entire crew onboard an offshore support vessel (OSV). To meet this need, CSpect sought out VideoRay to jointly develop a cost-effective way to provide these inspections for the North Sea wind farm marketplace.

VideoRay's Mission Specialist vehicles proved to be the ideal solution, delivering the power and maneuverability these inspections require, at a compact size and weight. Operators can simply drop the vehicle into the water directly from the monopile, eliminating the need for costly work-class vehicles, OSVs, special handling equipment and additional personnel.

CSpect now uses a combination of VideoRay Defender and Pro 5 systems, coupled with its own engineered tooling, to successfully conduct comprehensive inspections of wind turbine jackets. CSpect has reduced costs more than 50%, decreased inspection time more than 50%, and improved safety by eliminating the need for a shipboard team. Also, because no OSV is required, CSpect reduced the overall carbon footprint of the mission to near zero.

#### MISSION SPECIALIST TECHNOLOGY

VideoRay's underwater robots are designed and built with power, reliability, and flexibility in mind. The Mission Specialist Defender is VideoRay's largest (17.2 kg/38 lbs) and most powerful configuration, optimized for precise control, heavier payloads, lifting and specialized operations. It features seven powerful thrusters that can handle currents up to four knots and has a 1,000-meter depth rating.

# UNDERWATER ROBOTIC SYSTEMS TO MAKE OFFSHORE WIND FARM MAINTENANCE MORE EFFICIENT

VideoRay's Mission Specialist Pro 5 is designed for optimal performance when size, speed, and efficiency matter most. Weighing in at 10 kg (22 lbs), the three-thruster system has a forward speed of over 4.4 knots and a 305-meter depth limit.

Both systems can be equipped with the advanced, user-friendly Greensea navigation and control system that delivers exceptional stability and maneuverability for complex tasks.

#### A COMPANY ON A MISSION

VideoRay Mission Specialist underwater robotic systems have redefined the "inspection-class" ROV category. Their systems deliver industry-leading power and maneuverability in a durable, modular platform built to handle heavy payloads and a wide array of sensors and tooling. These one-man-portable systems can operate at significant depths for hours, days or even months at a time. Mission Specialist robots are used around the world in demanding underwater missions to support national security, first responders, object search and recovery, infrastructure examination, and science and research.

To learn more about VideoRay, visit [www.videoray.com](http://www.videoray.com) or call +1 610-458-3000.



» The Pro 5, like the Defender, can be equipped with Greensea's navigation and control system. (Image credit: VideoRay)

**ON&T**

2023

# OBSERVATION ROVs WITH PAYLOAD OPTION



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## OBSERVATION ROVs WITH PAYLOAD OPTION

### 3D AT DEPTH

[HTTPS://3DATDEPTH.COM](https://3datdepth.com)

Sales | USASales@3datdepth.com



#### CUVIER DEEP

3D at Depth's containerized, fully integrated ROV Subsea Vehicle Inspection and Survey Solution designed to optimize mobilizations by transforming an open deck vessel to a survey and inspection platform in less than 18 hours. Deepwater assets and Offshore wind operators, owners and Energy providers can now reduce expenditures and risks while lowering offshore man-hours, decreasing carbon footprint without sacrificing quality by providing measurable and enhanced information.



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### ARGUS REMOTE SYSTEMS AS

[WWW.ARGUS-RS.NO](http://WWW.ARGUS-RS.NO) | Sales | sales@argus-rs.no



#### ARGUS ROVER

Observation class ROV that can do light work. Can be fitted with one or two manipulators for light work. (Customizable)



VC&L | NDT | A&T



#### ARGUS MINI

Observation class ROV that can be fitted with an open/close manipulator. (Customizable)



VC&L | NDT | A&T

### BLUELINK, LLC

[HTTPS://BLUE-LINKED.COM](https://BLUE-LINKED.COM) | Jeff Conger | jeff\_conger@hotmail.com



#### SARBOT

Designed specifically for First Responders, the SARBOT™ (Search & Recovery Robotic System) is a highly capable and low-cost tool for searching, locating and identifying submerged targets in marine environments. Designed from a base ROV platform that has more than 3000 systems in the field, the SARBOT™ has been optimized to allow the operator to work in low to zero visibility conditions, recover targets and work with an unlimited search time. (Customizable)



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### BOXFISH RESEARCH

[WWW.BOXFISH.NZ](http://WWW.BOXFISH.NZ) | Vera Bronza | info@boxfish.nz



#### BOXFISH ALPHA

A reliable and versatile best-in-class ROV for asset inspection and light intervention work at depths of up to 300 m. Customized to optimize functionality but reduce cost, Alpha delivers 4K live video, 20MP stills, 6x true 4K zoom, 3–12 hours power endurance, and is upgradeable with up to three add-ons. (Customizable)



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#### BOXFISH LUNA

The only next-generation professional cinematography ROV integrating a full-frame camera capable of shooting up to 4K ProRes RAW video at 30p and 50MP stills. The actively stabilized vehicle can travel and orientate itself in any direction, ensuring super-smooth and creative shots. The surface console also enables precise management of camera settings. (Customizable)



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#### BOXFISH ROV

Industry-leading actively stabilized, highly-maneuverable ROV for underwater research delivering 4K live video and 20MP photos from depths of up to 1,000 m with near-zero latency. This lightweight and portable vehicle is easily operated with pilot-assist features and deployable by hand with two crew. The system offers integration of up to eight sensors. (Customizable)



OBS | SUR | VC&L | A&T | NDT

**COPENHAGEN SUBSEA A/S**

WWW.COPENHAGENSUBSEA.COM  
Sales | sales@copenhagensubsea.com

**GORILLA ROV**

The Gorilla from Copenhagen Subsea is particularly robust and reliable in challenging subsea environments in the offshore industry. It is equipped with an intelligent state-of-the-art Dynamic Positioning (DP) system and is based on Copenhagen Subsea's successful rim-driven thruster technology and standard electronic components from OMRON, making it easy to maintain. (Customizable)



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**DEEP OCEAN ENGINEERING**

WWW.DEEPOCEAN.COM | Sales | sales@deeppocean.com

**PHANTOM® FIREFLY**

Sized to penetrate through and below the top guide and core plate. Normally used for steam dryer visual exam during BWR scheduled outages. All materials are suitable for use in nuclear support. Torque balanced thrusters provide a high degree of control and maneuverability in the confined environments. (Customizable)



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**PHANTOM® P-150**

Designed for nuclear industry with stable materials/FME concerns as a priority, two horizontal and two "Vertrans" thrusters, with additional thrusters/configurations available, no electronics in the sub unit ensures reliability in areas of high radiation, access through 20" dia. manholes and into PWR Recirc Piping. (Customizable)



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## OBSERVATION ROVs WITH PAYLOAD OPTION

### DEEP OCEAN ENGINEERING

WWW.DEEPOCEAN.COM | Sales | sales@deeponcean.com



#### PHANTOM® S-SERIES

The Phantom® S-Series is a portable high performance ROV that combines superior power, telemetry, and payload with ease of use, ruggedness and reliability. This provides a powerful overall performance envelope and versatility compared to other vehicles of its class. The S-Series can be configured with either 6 or 8 thrusters that enable aggressive lift capabilities and significant control in harsh conditions while reaching depths up to 1,000 meters. (Customizable)



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#### PHANTOM® L6

##### PHANTOM® L-SERIES

The Phantom® L-Series is an inspection-class underwater remotely operated vehicle, designed for use in numerous applications across a spectrum of industries. The Phantom® L6 is designed with four vectored horizontal and two vertical Tecnadyne® thrusters, which provide significant control and propulsion in current. (Customizable)



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### DEEP TREKKER

WWW.DEEPTREKKER.COM | Sales | sales@deeptrekker.com



#### REVOLUTION ROV

With swappable lithium-ion batteries, six vectored thrusters, and an enhanced 4K camera (260° FOV), it excels at control and station holding. Offering a 305 m (1,000 ft) depth rating, bright LED floodlights, up to 500 m (1,640 ft) tether, and seamless integration with add-ons and sensors, such as sonar, USBL, and DVL systems.

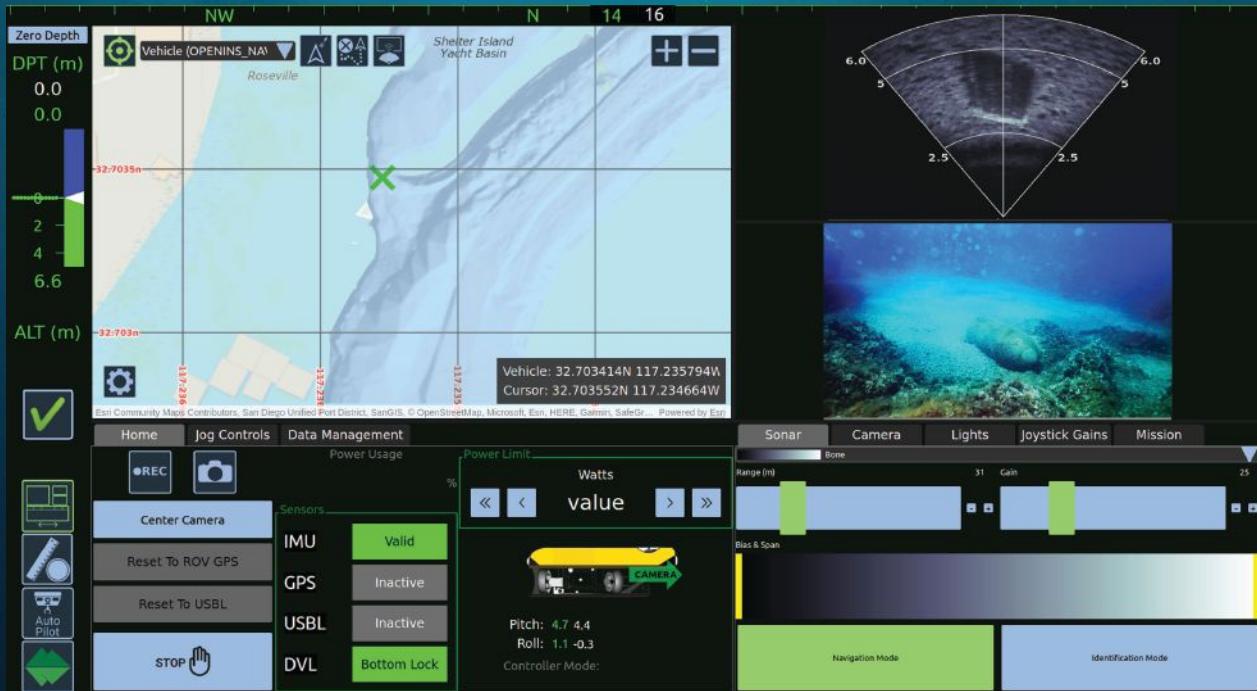


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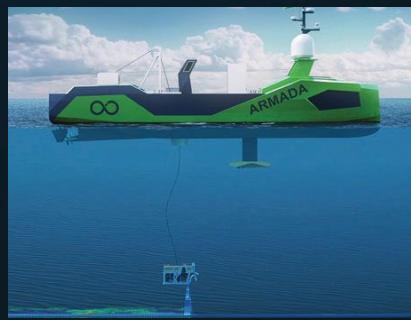


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Subsea



Surface



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### DELAIR MARINE

[HTTPS://SEASAM.NOTILOPLUS.COM](https://SEASAM.NOTILOPLUS.COM) | [seasam@delair.aero](mailto:seasam@delair.aero)



#### SEASAM

Seasam Drone™ is a compact underwater system capable of conducting autonomous operations as well as being a high-performance, next generation ROV. In autonomous mode, the drone is able to locate and track specific targets and perform complex operations such as hull inspections, leaks detections and more. Using proprietary sonar and vision technologies, Seasam Drone can avoid obstacles automatically, perform wall servoing and remain stable in any position. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK



#### SEASAM HULLSCAN

Based on the award-winning technology platform of Seasam Autonomous Drone, the new Seasam HullScan™ redefines ROV practices for ship hull inspection for operators, and empowers surveyors & maintenance professionals worldwide. Our engineers have designed a new form factor for our underwater drone, allowing a 300% increase in lateral speed. Therefore, you can now face your subject and glide laterally easily in up to 2 knots current. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

### DWTEK CO., LTD.

[WWW.DWTEKMARINE.COM](http://WWW.DWTEKMARINE.COM)  
[info@dwtek.com.tw](mailto:info@dwtek.com.tw)



#### INVESTIGATOR 30

The fundamental design concept behind the I-30 ROV is the creation of an expandable vehicle that is both functional and versatile. The extraordinary expandable capability allows the operator to follow their expectation to customize a full function ROV for the specific application. The highly excellent flexible vehicle design allows the installation of a wide range of different payloads and equipment. It opens a new page for this class of remote observation vehicles. (Customizable)



VC&L | A&T

### EXAIL

[WWW.EXAIL.COM](http://WWW.EXAIL.COM) | Antony Penn | [sales.robatics@exail.com](mailto:sales.robatics@exail.com)



#### H300V

Observation Class ROV with 4 horizontal vectored thrusters for inspection missions in very harsh environments, up to 300 m depth. Modular design and easy configuration thanks to a wide range of cameras, sonars, manipulator arms, tools, and any type of sensors that can be installed on a "payload skid." (Customizable)



OBS | VC&L | A&T | VSK



#### H800

Observation Class ROV and light duty work system for subsea observation, inspection and surveillance in strong currents, up to 1,000 m depth. Modular design and easy configuration thanks to a wide range of cameras, sonars, manipulator arms, tools, and any type of sensors that can be installed on a "payload skid." (Customizable)



OBS | VC&L | A&T | VSK



#### R7

The Exail's R7 is an ROV which combines the compactness and ease of deployment of mini-ROVs with the performance, speed and payload carrying capacity of larger Observation Class ROVs. Fast, modular and easy to deploy, the R7 is designed for oceanographers, hydrographers, fish farmers and operators of submerged structures for all their underwater missions up to a depth of 300 m. (Customizable)



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## FORSSEA ROBOTICS

HTTPS://FORSSEA-ROBOTICS.FR | Gautier Dreyfus | gdreyfus@forssea-robotics.fr



### ARGOS

ARGOS ROV embraces the latest advances in ROV technology that the industry has come to demand and expect from modern ROV design. ARGOS is compact in design and is primarily suited to inspection and light intervention tasks. The vehicle is powerful enough to perform maintenance and repair duties with use of the optional electric five function manipulator arm and tooling skid interfaces. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK



### ATOLL

ATOLL (patented system) is an Observation Class ROV deployable from a light vessel. The system can perform a fully autonomous approach and docking based on embedded control algorithms. Once the link is obtained to the seabed target, ATOLL can either transfer power & data, or mechanically engage the target for recovery back to surface and valve manipulation. ATOLL comes with dedicated LARS system or can be adapted to any LARS or crane system. (Customizable)



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## FORUM SUBSEA TECHNOLOGIES

WWW.F-E-T.COM

Sales | rov.sales@f-e-t.com



### COMANCHE

Comanche is the logical choice when seeking the ultimate 'all around' electric ROV. Offering a generous auxiliary hydraulic package for work class manipulation and tooling combined with an advanced and powerful control and diagnostics package for survey and other data collection missions, the Comanche offers high performance, high reliability and high adaptability.



## TASKS

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CONSTRUCTION

### INT

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BURIAL &

TRENCHING

## TOOLS

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### NDT

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## OBSERVATION ROVs WITH PAYLOAD OPTION

### FORUM SUBSEA TECHNOLOGIES

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#### MOHICAN

Mohican was specifically developed to cope with the fast moving and unpredictable turbid waters of the southern North Sea. The 'dynamic vector' feature enables the operator to adjust thruster angles on the fly for agile maneuvering and the 3,000v 400Hz power system is particularly suited to long tether excursions and deep liveboating operations.



OBS | INS



#### SUPER MOHAWK

Super Mohawk is a robust, durable and long proven ROV system designed for high payload, with plenty open deck space and skid mounted options.



### FUGRO

WWW.FUGRO.COM  
Sales | www.fugro.com/contacts



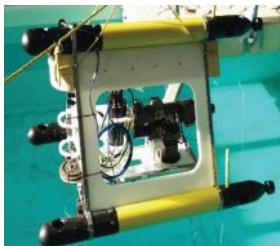
#### FUGRO BLUE VOLTA (EROV)

The world's most advanced ROV, with deployment from an uncrewed surface vessel (USV), and equipped with the latest in electronic hardware, software and artificial intelligence (AI). Whilst retaining the capability to be operated conventionally from an ROV survey vessel, barge, platform or rig, the Blue Volta is also the world's first ROV designed to be remotely controlled from Fugro's global network of ROCs as an over-the-horizon ROV without needing a parent vessel or ROV pilot nearby.



### GRAAL TECH

WWW.GRAALTECH.COM



#### R-300

R-300 is the ROBUST vehicle of the X-300 family, designed for carrying bulky and heavy payloads. It is constituted by three short X-300 AUVs which are attached to a triangular aluminum frame supporting the installation of many different equipment of interest. A connection module mounted at the bow of each X-300 provides a common power and data link among the three composing AUVs and enables their effective motion coordination. As a result, R-300 is an extremely agile vehicle with high maneuverability, that can operate either as a standard AUV, or as an ROV thanks to the available fiber-optic tether.



OBS | SUR | INS

### HYDROMEA

WWW.HYDROMEA.COM | Sales | sales@hydromea.com



#### EXRAY PROFESSIONAL ROV

Only 8 kg/18 lbs. of weight with only 13 cm/5" of height, EXRAY ROV has 6 DOF with patented hubless thrusters that offer especially fine control. With a 4K camera and a growing list of payload options (gripper, vac-cleaner, UT, sonars), EXRAY ROV is a backpack-size professional tool for underwater inspections that just gets the job done. (Customizable)



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## KYSTDESIGN

WWW.KYSTDESIGN.NO  
Sales | post@kystdesign.no



### SURVEY ROV

KYSTDESIGN has over the past years developed two specialised ROV's for survey purposes. The Surveyor Interceptor was developed for a joint venture between Reach Subsea and MMT. The Superior was developed for DeepOcean. Both ROVs are developed with focus on high speed and high capability for carrying survey sensors.



OBS | SUR | INS

## L3HARRIS

WWW.L3HARRIS.COM | Giuseppe Ranieli | Calzoni.Sales@L3Harris.com



### AGEOTEC ROV ANTARES

L3Harris' AGEOTEC ROV Antares features as many as two HD cameras. It is equipped with as many as four 4K lumen LED lights and supports up to 14 Kg payload. The vehicle can reach 400 msw depth and it's operated using a portable control unit, contained in a trolley suitcase. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T



### AGEOTEC ROV LYRA

The ROV Lyra features an exceptional payload capacity and an amazing weight-to-power ratio for an observer class remotely operated vehicle. Reaching up to 300 msw depth, Lyra features a modular chassis manufactured in non-corroding high impact resistant polypropylene. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T

## TASKS

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**WT**  
WORK TOOLS

## L3HARRIS

WWW.L3HARRIS.COM | Giuseppe Ranieli | Calzoni.Sales@L3Harris.com



### AGEOTEC ROV PEGASO

Representing the ideal light-work class solution. The Pegaso reaches 2,000 msw depth and is capable of 150 kg payload. Its dedicated skid—suitable for any kind of survey equipment—can be accessorized with a 7 function manipulator. Pegaso is perfect for inspecting, monitoring, surveying, target detecting and construction supporting. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T



### AGEOTEC ROV PERSEO

Perseo represents the perfect multitasking solution. With as many as 25 kg payload and as many as three real-time cameras, the vehicle is equipped with an inertial measurement unit providing high accuracy heading position. It can reach a 600 msw depth and can be customized using a wide range of accessories. (Customizable)



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### AGEOTEC ROV PERSEO GTV

The Perseo GTV is a multi-purpose class ROV capable of amazing performances. Reaching a 1,500 msw depth, the vehicle supports up to 40 kg payload and is equipped with multiple HD real-time cameras. Perseo GTV can be customized using many accessories, including sonar and multi-beam echosounder. (Customizable)



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# OBSERVATION ROVs WITH PAYLOAD OPTION

## MARINER UNDERWATER ELECTRONICS

WWW.MARINER.GR  
Marinos Pittas | marghe@otenet.gr



### MARINER MRM 230 ROV

The MARINER MRM 230 ROV is one of the latest additions in our range of products for underwater use. It can operate to a depth of up to 250 meters and has been designed so as to be used for professional inspection and survey works in offshore waters. Orientated to ease of use and meticulousness, MRM serves as a powerful tool to the professional operator.



OBS | INS

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## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE  
Niklas Becker | n.becker@mariscope.de



### FO III

Manufactured in stainless steel, manually TIG-welded, equipped with powerful thrusters, designed for 24/7 use, easy to maintain, robust and stable. Full HD/4K cameras and high output LED-lights. With its open frame, can be equipped with additional accessories like electric manipulators, lasers, sonars and tracking devices. Wireless steering console. Lifetime warranty. (Customizable)



OBS | INS | SUR | VC&L | A&T | NDT

## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE | Niklas Becker | n.becker@mariscope.de



### CHAMELEON

The Chameleon is a pure scientific ROV specially developed taking into account the applications and needs of the scientific community. Completely modular in structure and equipment, the Chameleon is configured with the client according to the tasks and scientific research missions that need to be carried out. Lifetime warranty. (Customizable)



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### DIAVOLO III

The next evolution of the FO III adding a lateral thruster to improve the side-wards movement, with the same 24/7 work capabilities. Its open frame construction allows an easy adaptation of accessories and allows an easy maintenance. Diavolo III can be adapted following the customer's requirements. Lifetime warranty. (Customizable)



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## OCEANBOTICS

WWW.OCEANBOTICS.COM | Sales | wprice@oceanbotics.com



### OCEANBOTICS SRV-8 ROV

The SRV-8 is designed for superior performance, equipped with Oceanbotics' exclusive 8 thruster DVC™ (Dynamic Vector Control) for the most advanced maneuverability on the market today. Operating the vehicle is easy with a simple set up, one-person portable system and the ability to deploy in 3 minutes or less. (Customizable)



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### SRV-8X OPTIMUS

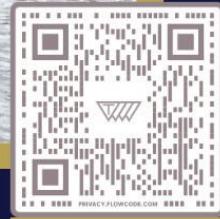
The SRV-8X Optimus pushes the limits required for challenging offshore deployments, offering significant payload capabilities and an increased number of sensors for more demanding and deeper underwater missions. The ROV is battery-operated, permitting improved range and ease of movement (down to 500 m depth). It also offers sophisticated data synchronization with SubNav OS software for seamless integration of optional accessories and a "plug-n-play" installation. (Customizable)



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## OBSERVATION ROVs WITH PAYLOAD OPTION

### OCEANEERING

WWW.OCEANEERING.COM



#### GLOBAL EXPLORER ROV

The Global Explorer ROV offers a complete suite of scientific tools for mid-water and benthic sampling, including: detritus sampler, rotary suction sampler, jet pump, push cores/quivers, and an insulated bio box. The Schilling ORION seven function spatially correspondent manipulator arm extracts fragile coral and artifacts with delicate precision.



OBS | SUR | VC&L



#### OMNI MAXX ROV

The Omni Maxx ROV is a true deepwater observation and inspection system that operates independently and provides high-definition images of subsea environments. The system consists of the ROV and a tether-management module with up to 820 ft (250 m) of tether cable.



OBS | INS | SUR

### OCEANEERING

WWW.OCEANEERING.COM



#### SEA MAXX ROV

The Sea Maxx satellite ROV is designed and built to work in tandem with work class ROVs at depths up to 14,400 fsw (4,400 msw). The system enables inspection of difficult-to-reach and confined areas, and is deployed from a separate housing welded beneath the work class ROV.



OBS | INS | SUR

### OUTLAND TECHNOLOGY

WWW.OUTLANDTECH.COM | Jeffrey Mayfield | jeff@outlandtech.com



#### ROV 2000

"OUTLAND 2000". 1,000 ft (300 meter) rated. Now with LED lights. The ROV utilizes brushless DC, magnetically coupled thrusters. Outland designed a control system around these thrusters to maximize the power. Tilting Camera forward give High Resolution and low light Color in one small package. A rear fixed camera is standard. The ROV can now use a 1,000 ft cable. Standard system ships with 500 ft.



OBS | SUR | INS



#### ROV 2500

"OUTLAND 2500". 1,000 ft (300 meter) rated. Now with LED lights. The ROV utilizes brushless DC, magnetically coupled thrusters. Outland designed a control system around these thrusters to maximize the power. Tilting Camera forward give High Resolution and low light Color in one small package. A rear fixed camera is standard. The ROV can now use a 1,000 ft cable. Standard system ships with 500 ft. (Customizable)



OBS | SUR | INS

## POSEIDON ROBOTICS, LLC

WWW.POSEIDONROV.COM | Peter Schubert | Peter@poseidonrov.com

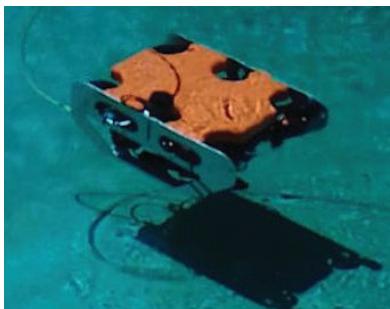


### LANAI

Designed by ROV operators for complicated operations. The Lanai offers more uptime and more payload. Ready to use in a capable and affordable package. (Customizable)



OBS | SUR



### LANAI PRO

Everything You Need, and MORE POWER. With all the Options of the Lanai, the Pro is Designed to handle Higher Currents and provides an Extra Video Input, 2 kW of Power, and a 22" HD Monitor integrated into the Console. (Customizable)



OBS | SUR



### MAUI

Designed with Large Payloads in mind. This system is ideal for Survey Work or Heavy Lifting and can be fitted to carry a Coda Octopus 3D Sonar, INS, Multibeam Profilers, or Sub Bottom Profilers. (Customizable)



SUR

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## SAAB SEAEDGE

WWW.SaabSeaeye.com

James Douglas | solutions@sabseaeye.com



### SEAEDGE FALCON

The Falcon is the most successful underwater electric robotic system of its class and is proven in numerous intricate and demanding missions across many commercial, security and scientific sectors. The Falcon is lightweight, sized just one meter long and is rated to a depth of 300 m or 1,000 m. (Customizable)



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## OBSERVATION ROVs WITH PAYLOAD OPTION

### SAAB SEAKEYE

WWW.SAABSEAKEYE.COM | James Douglas | solutions@saabseaeye.com



#### SEAKEYE FALCON-DR

The Falcon concept is the most successful underwater electric robotic system of its class and is proven in numerous intricate and demanding missions across many commercial, security and scientific sectors. The Falcon-DR is lightweight, sized just over one meter long and is rated to a depth of 1,000 m. (Customizable)



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#### SEAKEYE LYNX

The Lynx is a leading observation and inspection vehicle for missions in water depths of up to 1,500 m. It is fitted with two vertical and four horizontal thrusters making it a very stable platform with exceptional maneuverability. A wide range of tools and sensors are available as well as interchangeable tooling skids. (Customizable)



OBS | INS | SUR | VC&L | A&T | NDT



#### SEAKEYE TIGER

Widely regarded as the leading observation and inspection vehicle within the oil and gas industry, the Tiger is also increasingly chosen by defense and marine science seeking increased capability in deep water. The Tiger is a very stable platform, with excellent maneuverability and performance in strong currents. (Customizable)



OBS | INS | SUR | VC&L | A&T | NDT

### SEAMOR MARINE LTD.

WWW.SEAMOR.COM | Sales | sales@seamor.com



#### SEAMOR CHINOOK ROV

The Chinook is an industrial grade inspection ROV with a wide range of capabilities. The Chinook offers a stable platform yet remains compact and can be rapidly deployed with ease by two people. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK



#### SEAMOR MAKO

With a large open frame design and versatile mounting options, this vehicle can carry a variety of accessories and has the power capacity to run them all at once. The Mako's payload (14 kg standard, upgradable to 22.5 kg) allows users to install heavy instrumentation, including multi-beam imaging sonars. Users can easily mount and position accessories without any special tools. The ample space in the accessory bay also improves flow-through, which ensures maximum thruster efficiency, making it easy to fly the Mako no matter the payload.



OBS | SUR | INS



#### SEAMOR STEELHEAD

The Steelhead inspection-class ROV is a portable, lightweight and stable underwater system that is easily operated through intuitive flight controls. Its small profile allows this vehicle to inspect confined spaces and be easily stowed. The compact Steelhead is easily deployed and recovered from small vessels and docks—no need for hoists or cranes. A standard definition NTSC/PAL camera, optimized for lowlight conditions provides the ROV operator with quality video. "Out of the box" features include an integrated controller and LCD monitor module with auto depth, auto heading, a digital video recorder and much more.



OBS | SUR | INS

## SEATRONICS

WWW.SEATRONICS-GROUP.COM

Jamie Neilson | jamie.neilson@seatrionics-group.com



### VALOR

The VALOR is one of the lightest yet most powerful Observation ROVs available. 300 m depth rated, however the unique design allows the vehicle to be extended up to 1,000 m. The VALOR's versatility is limitless given the significant payload, unrivalled power capability and available bandwidth allowing the ROV to manage complex tooling and sensor packages. (Customizable)



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## SHARK MARINE TECHNOLOGIES INC.

WWW.SHARKMARINE.COM | sales@sharkmarine.com



### BARRACUDA

Designed for speed and power, the Barracuda is very capable in high current applications. Constructed using high-tech plastics, anodized aluminum and syntactic foam, it is small and maneuverable. It is also large enough to support the easy addition of mission specific accessories (e.g. sonar and video systems). All accessories fit inside the frame to avoid entanglement issues. The built in Total Navigation System, and DiveLog software, give the it full geodetic positioning and autonomous capabilities.



### SEAWOLF-5

The SeaWolf-5 is an ROV unlike any other. A true light/medium work class ROV, the SeaWolf-5 packs a lot of power and modularity into a small frame. Customers can choose from a 4 or 6 thruster model or upgrade at any time. The SeaWolf-5 operates autonomously or semi-autonomously using Shark Marine's "DiveLog".



## SUBMERSIBLE SYSTEMS INC.

WWW.SSIROVS.COM | Wolfgang Burnside | office@ssirots.com



### TRV-005

The Ultimate ROV for serious Offshore Platform Inspections and Pipeline Survey Work, no other ROV comes close to the rugged, reliable and incredibly maneuverable TRV-005.



### TRV-M

A versatile vehicle often undertaking Workclass tasks in areas that prohibit access to larger Vehicles. The moderate payload also allows the secure attachment of additional Equipment/Sensors to the T6061 Aluminum frame. The TRV-M high mass/Thrust ensures easy transitions from the Surface to the Seabed to either its standard depth rating of 1,000 m or to the optional 3,000 m depth rating.



## SUBSEA TECH

WWW.SUBSEA-TECH.COM

Grégory Maurin | gregory.maurin@subsea-tech.com



### TORTUGA

Tortuga has 4 horizontal thrusters (4x20 kgf) fitted with a unique azimuthal control system allowing operations in currents up to 4 knots, regardless of the direction. With an unrivaled 1:8 thrust to weight ratio and a fully integrated acoustic imaging solution, Tortuga is the ultimate vehicle for underwater inspections in harsh operational conditions. (Customizable)



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## OBSERVATION ROVs WITH PAYLOAD OPTION

### TELEDYNE SEABOTIX

WWW.TELEDYNEMARINE.COM | SeaBotix\_Inquiries@teledyne.com



#### VLBV300

The SeaBotix vLBV® represents an evolution in small, capable, vectored Mini ROV systems. Four powerful 100 mm (4 in) horizontal thrusters, arranged in a vectored format, offer nearly equal horizontal thrust in all 360-degrees of flight. (Customizable)



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#### VSK VEHICLE STATION KEEPING

#### WT WORK TOOLS

### VIDEORAY

WWW.VIDEORAY.COM | Sales | sales@videoray.com



#### CUSTOM MISSION SPECIALIST

The modularity of VideoRay's Mission Specialist technology enables easy maintenance, fast repairs, simple upgrades, and seamless integration across configurations. Each configuration consists of several modules developed by VideoRay or our tool and sensor specialist partners so you know that you're receiving the highest quality parts made exactly for your system. (Customizable)



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### TEXTRON SYSTEMS

WWW.TEXTRONSYSTEMS.COM



#### COMMON UNMANNED SURFACE VEHICLE (CUSV)

Textron Systems' CUSV system continues to feature the maritime version of our proven, common command-and-control system—a trusted system that has successfully supported unmanned aircraft during more than one million flight hours. Whether in a mine sweeping and neutralization role; intelligence, surveillance and reconnaissance (ISR); harbor security; monitoring or protection, our fourth-generation CUSV is a mature, multi-mission and multi-payload capable vehicle with significant in-water experience. (Customizable)



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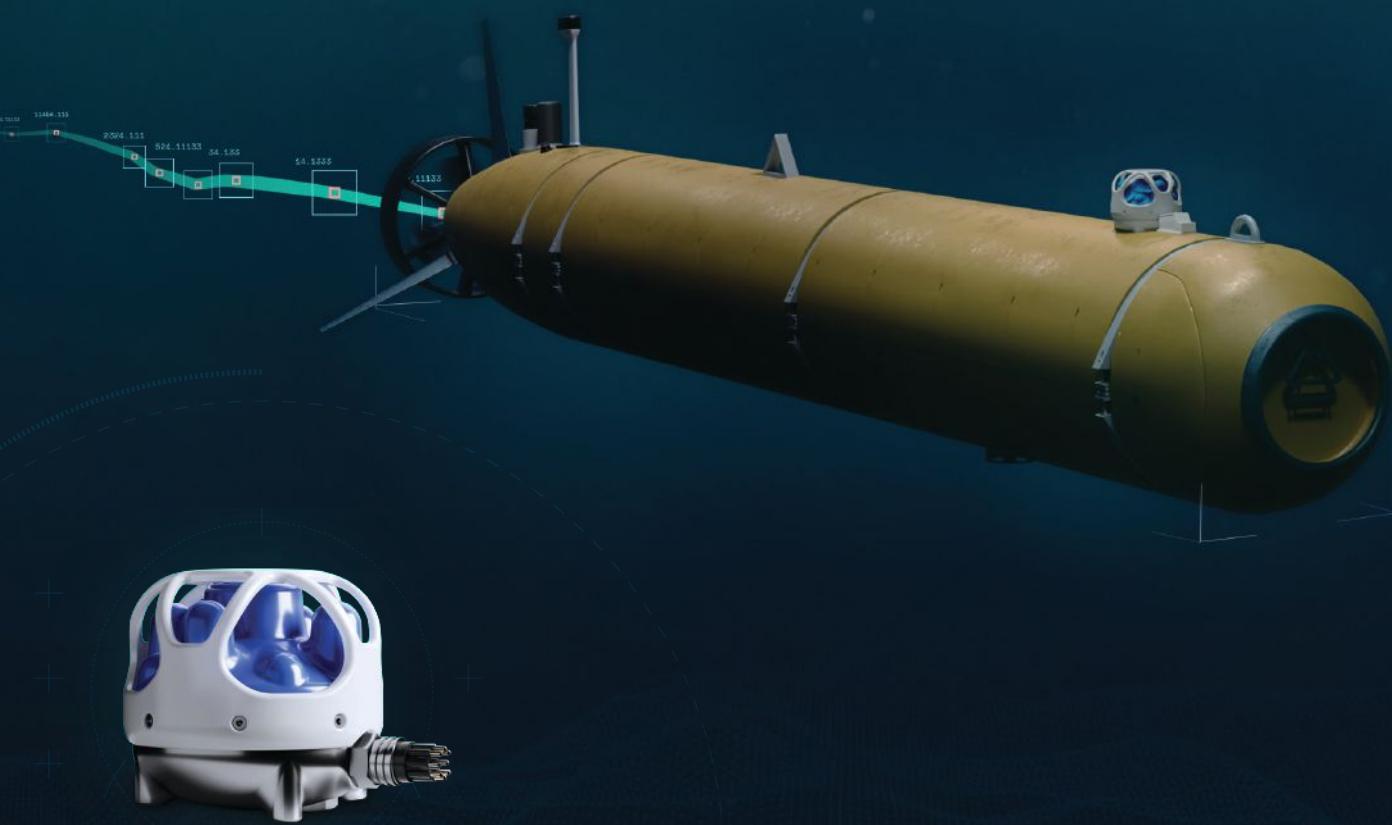
#### MISSION SPECIALIST DEFENDER

The Mission Specialist Defender configuration is designed for more precise control of the vehicle position and orientation, heavier payloads, and demanding intervention, such as rendering unexploded ordinance safe or cleaning nets for offshore fish farms. With seven thrusters, the Defender is able to move in any direction, and maintain active pitch to face the vehicle in an upward or downward orientation. The addition of third party control and navigation software from Greensea Systems or SeeByte makes the Defender a popular configuration for dangerous or heavy-duty missions. (Customizable)



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# ACCURATE POSITIONING IN THE MOST DEMANDING CONDITIONS



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ADVANCED  
NAVIGATION

## A NEW GENERATION OF SUBSEA VEHICLES PUSHES BOUNDARIES

» Oceaneering's Freedom AUV has already completed over 650 pipeline runs during more than 600 days of testing. (Image credit: Oceaneering)

Over the last decade, Oceaneering has worked with customers to design and manufacture advanced subsea vehicles that increase efficiency, boost operational windows, and support energy sustainability.

### AUTONOMOUS PIPELINE SURVEYS

Oceaneering's Freedom™ AUV for pipeline inspections offers the data resolution and completeness of coverage in a single pass typically obtainable using an ROV, but with the speed and efficiency of an AUV. In autonomous and tetherless AUV configuration, it offers a working range of 120 km, a working depth rating of 6,000 msw, and a top speed of 3 m/s. The vehicle can be deployed for up to six months subsea via subsea garage or docking station that support recharging and transmission of data.

Freedom's modular components and standardized, system-agnostic interfaces offer plug-and-play connectivity for sensors, batteries, thrusters, and an intelligent power and ethernet module. The design provides the flexibility required to meet current and emerging customer needs while decreasing maintenance time, improving reliability, and increasing the vehicle's capabilities.

Freedom is the industry's most thoroughly tested, demonstrated, and capable solution, having completed over 650 pipeline runs during more than 600 days of testing. Additional hardware modifications are planned to expand the vehicle's capabilities to include cleaning operations, light intervention, and leak detection.

### ELECTRIC WORK CLASS RESIDENT VEHICLE

The Liberty™ E-ROV is a battery powered, self-contained, work class resident vehicle that is supported by a communications buoy, enabling it to be operated by shore-based teams at an Oceaneering Onshore Remote Operations Center (OROC).

Because Liberty is deployed by a vessel of opportunity and resides in a garage on the seafloor, its operational window is not affected by the surface weather to the same degree as traditional ROVs. It can carry out work independent of vessel support, such as inspection, commissioning, pipeline isolation and pigging, subsea decommissioning structural inspection, cathodic protection measurement, riser and anchor line inspection, cleaning and visual inspection, rig support and other tasks.

Since 2019, Liberty has completed over 160 missions, amassing 14,000 operational hours. It is estimated that Liberty has eliminated over 19,000 tons of support vessel CO<sub>2</sub> emissions, averaging a reduction of 33T emissions per Liberty dive day.

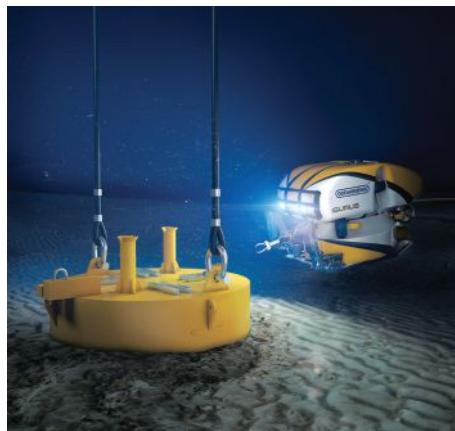
### HIGH-SPEED WORK CLASS ROV

The Isurus™ ROV was designed to operate in high currents conditions common at most offshore wind and tidal construction sites. Based on Oceaneering's proven Magnum® Plus ROV and leveraging its existing powertrain design, Isurus can achieve a top speed of up to 5 knots.

Unlike other high speed ROVs, the Isurus is a fully capable work class system with two hydraulic manipulators. It delivers the same hydraulic and electric power for tools and payloads as the Magnum.

Thanks to its success, the Isurus fleet has grown to eight systems since its launch in 2019. The six operational vehicles have amassed over 11,000 total dive hours, and two vehicles are awaiting installation. There are also two alternate designs for customer use; one that increases lateral speed by adjusting the front thruster angles and another that features a new vehicle frame to accommodate a tophat tether management system.

For more information, visit:  
[www.oceaneering.com](http://www.oceaneering.com).



» The Isurus ROV was designed to operate in the unpredictable waters found at offshore wind construction sites. (Image credit: Oceaneering)

**ON&T**

2023

# WORK CLASS VEHICLES



ENVIRONMENTAL



DEFENSE



OFFSHORE OIL & GAS



SCIENCE



SEABED MINING



OCEAN RENEWABLES



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## WORK CLASS VEHICLES

### AKVA GROUP | SPERRE ROV TECHNOLOGY

WWW.AKVAGROUP.COM/SPERRE | post@sperre-as.com



#### FLYING NET CLEANER 8

Remote operated net cleaner easy to operate, auto functions thruster propulsion (no damages from wheels, belts or nozzle minimal waste).



INT | VC&L



#### SUB-FIGHTER 10K

The SUB-fighter 10K is a powerful ROV and a "work horse." We have delivered more than 40 systems of this type of ROV that are being used for all kinds of work and inspection down to 3,000 meters.



SUR | INS | CON | INT | VC&L



#### SUB-FIGHTER 15K

The offshore version of SUB-fighter 15K is an ROV with vectorized horizontal thrusters tailor designed for use with subsea installations together with TMS.



CON | INT | VC&L | A&T



#### SUB-FIGHTER 30K

SUB-fighter 30K is our most powerful ROV. The system has been delivered to Hydro and NTNU, amongst others.



SUR | INS | CON | INT



#### SUB-FIGHTER 3000

ROV designed for tough conditions. Reliable and well proven design. Quick and easy mobilization. Very good stability. Plenty of power.



SUR | INS | CON | INT



#### SUB-FIGHTER 5500

The SUB-fighter 5500 has been produced for Norwegian environments. This is an ROV with a lot of options at a low cost.



SUR | INS | CON | INT

### ARGUS REMOTE SYSTEMS AS

WWW.ARGS-RS.NO

Sales | sales@args-rs.no



#### ARGUS MARINER XL

Medium Work class ROV that can be fitted with 2 x 7 function manipulators and has a separate HPU for manipulator and tooling. (Customizable)



SUR | INS | CON | INT



#### ARGUS WORKER

Heavy Work class ROV for deepwater. Can be fitted with 2 x 7 function manipulators and has a separate HPU for Manipulator and tooling. (Customizable)



SUR | INS | CON | INT

## ARGUS REMOTE SYSTEMS AS

WWW.ARGS-RS.NO

Sales | sales@argus-rs.no



### ARGUS WORKER XL

The Argus Worker XL, the powerful and flexible work class ROV. The Argus Worker XL is a powerful electric WROV. Ideal for drill support, survey and IMR (inspection, maintenance and repair). (Customizable)



SUR | INS | CON | INT

## DEEPOCEAN ENGINEERING

WWW.DEEPOCEAN.COM

Sales | sales@deepecan.com



### PHANTOM X-SERIES

The Phantom® X-Series is an electric, light work-class, vehicle that packs a robust design for deep sea maneuverability and power. Configured with six vectored horizontal and two vertical Tecnadyne brushless thrusters, the Phantom® X8 has complete control and authority in any given direction, even in the toughest currents.



SUR | INS | CON | INT

## CENTURION SUBSEA SERVICES

HTTPS://CENTURIONSUBSEASERVICES.COM | info@centurionsubseaservices.com



### AUXROV

The latest system was built as a 300HP system for power Mass Flow Excavations Systems in deep water. The AUXROV system has a SWL of 20 t and has been load tested to 3G. New applications for the system are still being identified but so far, we have operated Mass Flow Excavation Systems, Hydraulic Tine Grabs, Hydraulic Clam Shell Grabs, shear cutters, rock bag deployment, and to operate a vast range of survey sensors. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD | WT | NDT | VSK



### MULTIROV

The MultiROV was designed to offer the operator a flexible solution to subsea remote operations and can be configured to meet changing and demanding operational requirements. MultiROV is simple to operate with an advanced control system and 4K video wall display together with class-leading performance, reliability and ease of maintenance. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD | WT | NDT | VSK

## TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
INSPECTION

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CONSTRUCTION

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INTERVENTION

B&T  
BURIAL &  
TRENCHING

## TOOLS

VC&L  
VIDEO CAMERA & LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC &  
TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

An advertisement for ATL Flexible Subsea Bladder Tanks. It features a large black flexible bladder tank, a blue cylindrical tank, and various industrial components. The text highlights "FLEXIBLE SUBSEA BLADDER TANKS", "CUSTOMIZED LIQUID STORAGE", "Solutions For Uncrewed ROV | AUV | USV", "Observation | Work | Defense", "FLEXIBLE BLADDERS", "PROPELLSION SYSTEMS", "PIPELINE MAINTENANCE", "BLOWOUT PREVENTION SKIDS", "DEEP SEA RESERVOIRS", "RESEARCH &amp; DEFENSE", "FLEXIBLE MATERIALS COMPATIBILITY EXPERTS", "Methanol &amp; Glycols, Remediation Effluents, Dispersants, Hydraulic Fluid, Chemical Cleaning "Cocktails", Otto Fuel, HAN Fuel, HTP, JP10, Oxidizers &amp; Sea Water... &amp; More", "OVER 6 DECADES OF EXPERIENCE", "201-825-1400", "atlinc.com", and "atl@atlinc.com".

# WORK CLASS VEHICLES

## DOER MARINE

WWW.DOERMARINE.COM | info@doermarine.com



### H2000

DOER's H2000 is a ultra compact work class ROV. Designed for multi-mission use from a variety of platforms, the H2000 can be used for underwater tasks including survey, sampling, search/recovery, NDT and inspection. H2000 is rated for 2000 m standard with options for 1,000 m and 3,000 m. This versatile, powerful vehicle is designed to take advantage of changing technology to provide years of service and upgradability. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK

## DOER MARINE

WWW.DOERMARINE.COM

info@doermarine.com

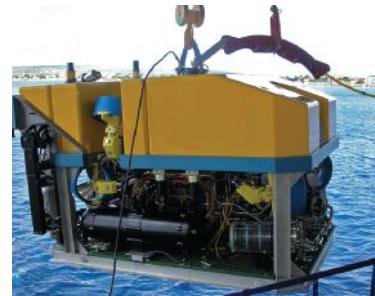


### OCEAN EXPLORER

DOER's Ocean Explorer 1,000 m is a mid size electric ROV. Its open frame architecture is designed to accommodate various sensor and tools with minimal integration effort. Typical applications include survey, sampling, search/recovery, tunnel/pipeline intervention and inspection. (Customizable)



SUR | INS



### H3000

Compact work class ROVs ranging from 10–100 hp and depths from 2,000 m to 6,500 m. TMS typically used with deeper system. DOER also offers five function manipulators, hydraulic pan/tilt, valve packs, thrusters and a wide variety of sampling, cleaning and custom tools. These systems have a great degree of flexibility in design and can be customized to suit client needs.



SUR | INS | INT | VC&L | A&T | CD | NDT | VSK



### H6500

Compact work class ROVs ranging from 10–100 hp and depths from 2,000 m to 6,500 m. TMS typically used with deeper system. DOER also offers five function manipulators, hydraulic pan/tilt, valve packs, thrusters and a wide variety of sampling, cleaning and custom tools. These systems have a great degree of flexibility in design and can be customized to suit client needs.



SUR | INS | INT | VC&L | A&T | CD | NDT | VSK

## DWTEK CO., LTD

DWTEKMARINE.COM

info@dwtek.com.tw



### WORKING CLASS MONEW

Monew is named after Taiwan's Sea Goddess, as a guard of the sea. A new generation of ROV, equipped with 8 horizontal thrusters, Monew has been tested under the strong Taiwan Strait current with proven performance to high resistance to ocean currents. It is designed with an independent motor unit with an all-electric system, which is easy to disassemble, maintain, and clean to operate in oil & gas light maintenance. (Customizable)



VC&L | A&T

## EXAIL

WWW.EXAIL.COM

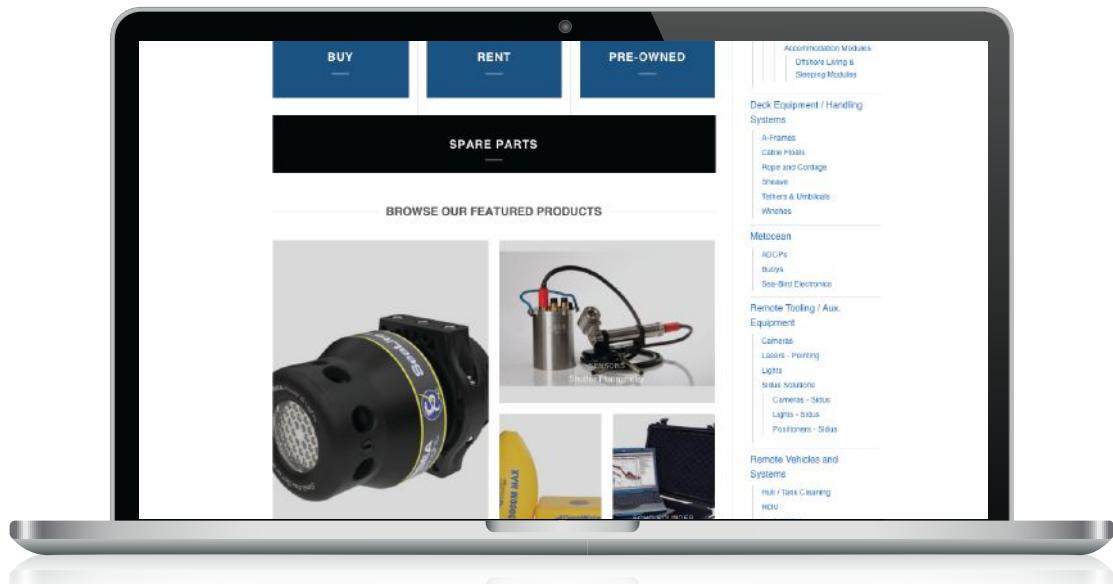
Antony Penn | sales.robots@exail.com



### PAP MK6

PAP MK6 is a self-propelled ROV dedicated to mine warfare with a high carrying capacity (NATO Mine Disposal Charge, Cutter). A robust and reliable design with high powered propulsion enables to maneuver in strong current and to withstand harsh environmental conditions. User friendly command and control software offers auto piloting functions.





## The largest single source marketplace for marine professionals

SeaCatalog.com is a centralized marketplace that supports ocean professionals from around the world by sourcing components and parts from multiple vendors through long time relationships with our global partners.

Receive quotes on new and pre-owned equipment from our extensive product line which includes thousands of parts and equipment, including over 10,000 ROV and Subsea spare parts alone.



**seacatalog.com**

## WORK CLASS VEHICLES

### FORUM SUBSEA TECHNOLOGIES

WWW.F-E-T.COM | Sales | rov.sales@f-e-t.com



#### XLX EVO ULTRA HEAVY DUTY ROV

The Forum Energy Technologies Perry XLX Evo ROV represents the latest evolution in the highly successful Perry XL series. The XLX Evo features significantly enhanced performance across the full range of demanding intervention and survey tasks without compromise to the outstanding reliability for which the XL series of vehicles is renowned throughout the world.



#### XLX-C HEAVY DUTY ROV SYSTEM

The Perry® XLX-C is a compact heavy-duty work-class hydraulic ROV, complementing the Perry® XLX 150-250 series of larger heavy-duty work-class ROVs.



### INTERNATIONAL SUBMARINE ENGINEERING LTD. (ISE)

WWW.ISE.BC.CA | Sales | info@ise.bc.ca



#### ISE HYSUB

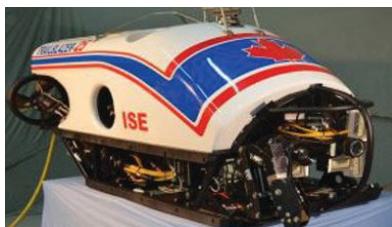
The ISE HYSUB ROV is a fully customizable work class ROV which is optimized for your operational profile. Select your payloads, depth, power, and frame size to receive your customized HYSUB in as little as 6 months! Every HYSUB is designed to last for decades in harsh conditions and is easy to modify and upgrade when new technology becomes available. The HYSUB is available from 25-250 hp in depth ratings to 6,000 m. (Customizable)



CON | INT | B&T | OBS | SUR | INS | VC&L | A&T CD | WT | NDT

### INTERNATIONAL SUBMARINE ENGINEERING LTD. (ISE)

WWW.ISE.BC.CA | Sales | info@ise.bc.ca



#### ISE TRAILBLAZER

The ISE Trailblazer is a tethered, high speed, remotely operated vehicle. It is capable of operating to depths of up to 1,500 meters in tidal currents, while carrying out a variety of military, scientific, industrial, or mine countermeasure missions. The system has executed trials under operational conditions and has proven its effectiveness in the location, identification, and disposal of underwater objects.



CON | INT | B&T | OBS | SUR | INS | VC&L | A&T | CD | WT | NDT

### KYSTDESIGN AS

WWW.KYSTDESIGN.NO | Åge Holsbrekken | post@kystdesign.no



#### CONSTRUCTOR

This is a general purpose hydraulic work class ROV. The system is characterized by a compact and integrated mechanical architecture, powerful and accessible hydraulic functions and a user friendly real time control system. The CONSTRUCTOR can be delivered with depth rating down to 6,000 m. It is uniquely designed for carrying and operating large tools and modules. (Customizable)



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#### SUPPORTER

SUPPORTER is a general purpose hydraulic work class ROV. The system is characterized by a compact and integrated mechanical architecture, powerful and accessible hydraulic functions and a user friendly real time control system. The system can be delivered with depth rating down to 6,000 m. (Customizable)



SUR | INS | INT | CON | VC&L | A&T | CD | WT | NDT | VSK

## KYSTDESIGN AS

WWW.KYSTDESIGN.NO

Åge Holsbrekken | post@kystdesign.no.gr



### STEALTH CLEANER

Stealth Cleaner is a full 6 Degrees of Freedom vehicle that can move swiftly and under full control in any direction, which makes it to the most efficient cleaner ROV in the fish farming industry.



INT

## MARINER UNDERWATER ELECTRONICS

WWW.MARINER.GR

Marinos Pittas | marghe@otenet.gr



### IPPODAMUS

The MARINER IPPODAMUS ROV is one of the latest additions in our range of products for underwater use. It can operate to a depth of up to 750 meters and has been designed so as to be used for professional inspection and survey works in offshore waters. It can carry sensors as well as small manipulators making our vehicle a very useful tool in the hands of experienced and professional operators. (Customizable)



## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE

Niklas Becker | n.becker@mariscope.de



### COMMANDER MK II

The smallest of these vehicles equipped with 5 thrusters of 300/600 Watt of power each. Depth rated to 500 m it can be equipped with a variety of oceanographic sensors, cameras, lights, manipulators and others in order to customize the vehicle according to the individual task and use. Lifetime warranty. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD  
NDT | WT

## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE | Niklas Becker | n.becker@mariscope.de



### COMMANDER MK III

With six thrusters of 300/600 Watt each, disposed in a vectorized manner. 1,000 meters operational depth. Its newly developed hydrodynamic design and completely enhanced construction increases the ROVs efficiency. Can carry out all kind of tasks, with special emphasis on searches, rescues, scientific studies and inspections. Lifetime warranty. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD  
NDT

### FLUNDER

With six thrusters of 400 Watt each, disposed in a vectorized manner. 500/1,000 meters operational depth. Hydrodynamic design and completely enhanced construction with power, speed and maneuverability. Can carry out all kind of tasks under the most adverse situations. Lifetime warranty. (Customizable)



SUR | INS | CON | VC&L | A&T | CD | WT  
NDT

## OCEANEERING INTERNATIONAL, INC.

WWW.OCEANEERING.COM



### eNOVUS ROV

The compact work class eNovus ROV is the newest addition to our fleet and is powered by an environmentally conscious, 150-kVA electric (235-hp hydraulic equivalent) propulsion system. This vehicle maintains work class manipulator capabilities via a dedicated hydraulic circuit. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD  
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## TASKS

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## TOOLS

VC&L  
VIDEO CAMERA & LIGHTING

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DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

## WORK CLASS VEHICLES

### OCEANEERING INTERNATIONAL, INC.

WWW.OCEANEERING.COM



#### FREEDOM™ ROV

Freedom provides a new level of flexibility and efficiency while performing common ROV tasks, including survey, inspection, valve and torque tool operations, manipulator-related activities, and underwater inspection in lieu of drydocking (UWILD) operations.



SUR | INS | CON | INT | VC&L | A&T | NDT

#### TASKS

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TRENCHING

#### TOOLS

VC&L

VIDEO CAMERA

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ACOUSTIC

& TRACKING

CD

CLEANING

DEVICES

VSK

VEHICLE STATION

KEEPING

WT

WORK TOOLS



#### LIBERTY E-ROV

The Liberty E-ROV is a 100 kW battery-powered work class resident system that will go subsea with a surface buoy. It is an electric vehicle with hydraulic power to support its manipulator functions. It is well-suited for inspection, maintenance, and repair (IMR), commissioning, and underwater intervention activities. (Customizable)



OBS | SUR | VC&L | A&T | NDT

### OCEANEERING INTERNATIONAL, INC.

WWW.OCEANEERING.COM



#### ISURUS™ ROV

The Isurus™ ROV builds on the success of the Magnum® Plus by combining experience, reliability, and full work class capabilities with best-in-class performance in high-current environments. The Isurus™ ROV enables activities in severe current conditions and is ideal for renewables and high-speed ROV surveys.



SUR | INS | CON | INT | VC&L | A&T | NDT



#### MAGNUM® PLUS ROV

The powerful Magnum Plus ROV delivers enhanced flight control in a smaller package. Reliable and easily maintained, it provides a 170-hp, high-thrust, tophat- or cage-deployed system designed for subsea intervention and deepwater tooling. (Customizable)



OBS | SUR | VC&L | A&T | NDT



#### MILLENNIUM® PLUS ROV

This powerful ROV features a dual-manipulator, 220-hp work class system with an enhanced thruster configuration that increases lift capacity by more than 50% compared with the standard Millennium ROV system. (Customizable)



OBS | SUR | VC&L | A&T | NDT



#### NEXXUS ROV

Our high-power, heavy work class ROV system meets the API Standard 53 requirements for BOP intervention. With heavily increased tooling capabilities, the NEXXUS ROV is designed to meet next-generation intervention requirements. (Customizable)



OBS | SUR | VC&L | A&T | NDT



**RTsys**  
Underwater Acoustics & Drones

## ENHANCING TRUST UNDERWATER WITH PORTABLE AUVs

» COMET-300 in transit for a new survey. (Image credit: RTsys)

Founded in 2010, the France-based ocean tech developer RTsys has a proven track record of advancing the field of underwater acoustics with its unique approach to technological innovations and ongoing investments in R&D.

RTsys is now recognized as a true industry leader in the design and manufacture of person-portable autonomous underwater vehicles (AUVs) for seabed monitoring and oceanographic survey up to 300 m depth, with the COMET-300 AUV being one of the chief protagonists in our portfolio.

### GAME-CHANGING AUV

The COMET-300 is the most affordable operational autonomous underwater vehicle (AUV) on the market that offers real-time positioning and a live acoustic communication system. Designed specifically to meet the broadening needs of marine research, defense, and commercial operators, the COMET-300 can operate as a standalone unit or as part of a network. In fact, the COMET-300 was the very first AUV able to operate in a swarm format and has done so successfully for more than 10 years already.

Able to operate at depths down to 300 m,

unimpeded by subsea currents thanks to the AUV's high-speed capabilities of over 10 knots, COMET-300 is the ideal solution for extensive marine survey campaigns for offshore development, environmental monitoring, search and rescue, and anti-mine warfare.

In addition to its wide range of standard payloads (SSS, OAS, magnetometer, HD TV camera and lights, CTD and any other multiparameter probes), the COMET-300 is celebrated for its embedded acoustic communication and repositioning capabilities at sea.

Mission planning is executed via one single programming and post-processing module, which is both light and ruggedized and so affords operators greater flexibility in terms of portability and rapid deployment, anywhere in the world.

Real-time monitoring of the mission (including live tracking underwater up to 2 km distance as standard) is ensured by a Surface Communication Module coupled to a waterproof touch pad. Again, such product enhancements are underpinned by the same design philosophy of optimizing user-friendly portability and operational robustness.

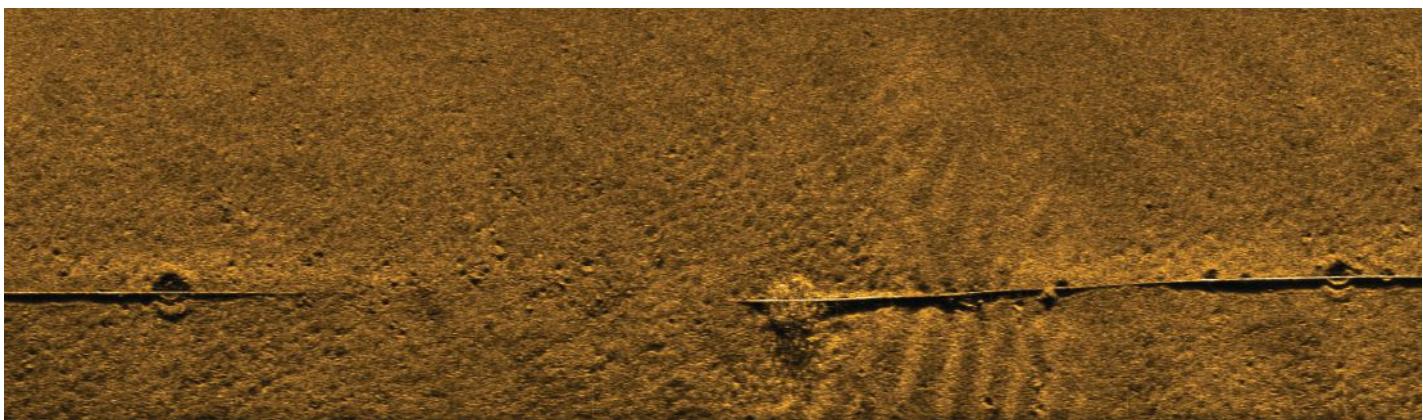
### SUPERIOR POSITIONING ACCURACY

Naturally, the positioning accuracy of the COMET-300 AUV is of paramount concern during any type of mission and that is why RTsys developed its very own unique underwater acoustic protocol called RACAM®: Repositioning And Communication Acoustic Module.

RACAM® is a lightweight and compact acoustic modem natively installed on every RTsys device. It enables a covering distance through Sparse-LBL over 2 km point to point and up to 5 km with a relay beacon (underwater or surface buoy). Its discrete application with low acoustic level provides real-time information relating to equipment status, such as the AUV's position, speed, heading, payload, depth, altitude, distance from the Rhib, and more.

In such a compact package, the COMET-300 offers the widest range of subsea capabilities possible, allowing every operator around the world to manage underwater exploration efficiently and responsibly, and without the significant costs associate with larger support vessels.

For more information, visit: [www.rtys.eu](http://www.rtys.eu).



» Cable tracking with 900kHz SSS. (Image credit: RTsys)

## WORK CLASS VEHICLES

### ROVOTICS

WWW.ROVOTICS.AE | Tamer El Essawy | sales@rovotics.ae



#### SHARK G2R ROV

The Shark G2R ROV features a high-power-to-size ratio, with over 80 kg of bollard pull while fielding a 35 kg payload. With a strong aluminum and polypropylene construction, it is rated for operation at up to 500 m, with an optional upgrade extending this to 1,000 m. The ROV is powered by six high-reliability SPE-75 thrusters. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK



#### SHARK G3R ROV

The Shark G3R ROV features a high-power-to-size ratio, with 130 kg of bollard pull while fielding a 100 kg payload. With a strong aluminum and polypropylene construction, it is rated for operation at up to 500 m, with a series of optional upgrades extending this to 1,000 m, 2,000 m or 3,000 m. The ROV is powered by six high-reliability SPE-250 thrusters. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK



#### SHARK G4R ROV

The Shark G4R is Rovotics' largest and most versatile ROV, providing 244 kg of bollard pull while fielding a 280 kg payload. This light-work-class ROV is rated for operation at up to 500 m, with a series of optional upgrades extending this to 1,000 m, 2,000 m or 3,000 m. The Shark G4R can be equipped with a 7-function and a 5-function manipulator. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD | NDT | WT | VSK

### SAAB SEAEDGE

WWW.SaabSeaeye.com | James Douglas | solutions@saabseaeye.com



#### SEAEDGE COUGAR-XT COMPACT

The Cougar XT Compact, is the shallow water version of the Cougar XT. An extremely powerful vehicle, it is ideal for inspection applications where strong tidal currents are experienced. The smaller chassis significantly reduces drag which, in combination with a high-performance thruster arrangement and a small diameter tether, offers unrivalled performance for its size. (Customizable)



SUR | INS | VC&L | A&T | CD | NDT



#### SEAEDGE COUGAR-XTI

The Cougar XTi is 3,000 m rated and features Saab Seaeye's iCON™ intelligence control system. The proven capabilities of the Cougar XT combined with the use of iCON™ and a high frequency, high voltage, power supply system make the Cougar XTi a formidable 3,000 m observation vehicle with significant work capabilities. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | WT | CD | NDT | VSK



#### SEAEDGE EWROV

The latest addition to Saab Seaeye's underwater portfolio, the eWROV is a full-sized Class III B ROV system. Electrification is the key to improved performance, and the eWROV takes electric underwater vehicle capabilities to the next level. (Customizable)



SUR | INS | CON | INT

## SAAB SEA EYE

WWW.SAABSEA EYE.COM | James Douglas | solutions@saabseaeye.com



### SEA EYE LEOPARD

The Leopard is an exceptionally powerful compact electric work class vehicle with a minimal 20 ft x 8 ft LARS footprint. It is fitted with up to 11 thrusters to provide a forward thrust of over 500 kgf, has a 200 kg payload and is controlled by Saab Seaeye's iCON™ intelligent control system. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | WT CD | NDT | VSK



### SEA EYE PANTHER-XT PLUS

The high current shallow water survey and light work vehicle, the Panther XT Plus is a 1,000 m depth rated vehicle fitted with ten 500 Volt DC thrusters, providing it with exceptional handling and speeds of up to four knots. It is ideal for tasks that include drill support, pipeline survey, IRM and salvage. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | WT CD | NDT | VSK

## SEATOOLS

WWW.SEATOOLS.COM | Sales | sales@seatoools.com



### ROH II - INSPECTION ROV

The ROH II, developed on behalf of Rijkswaterstaat, is a multipurpose inspection ROV designed for inspection, sampling, survey, and light intervention tasks in waters with strong currents and poor visibility, such as the North Sea. Because the ROV should be able to perform a wide variety of tasks, Seatoools developed two different modes: the hanging mode and the free-flying mode. As this was never done before, the project posed a significant challenge to our engineers. (Customizable)



SUR | INS



### ROCKPIPER - FALL PIPE ROV

Significant operational efficiency gains thanks to revolutionary integrated survey ROV technology. Our client Boskalis approached Seatoools with a proposition to integrate a survey ROV into their main fall pipe ROV in order to eliminate the need for separate post-process surveys. The result is a highly automated fall pipe ROV that integrates a survey ROV. The survey ROV features full DP functionalities, and can dock and undock fully automatically so as to facilitate direct post-process surveys that yield major cost savings. (Customizable)



SUR | INS | CON | INT |



### ROV 7 - FALL PIPE ROV

A state-of-the-art fall pipe ROV that achieves extremely reliable rock installation operations. The ROV 7 fall pipe ROV, which was built for Van Oord, integrates all of Seatoools' knowledge and capabilities in the field of fall pipe ROVs, and represents the state of the art in the field of ROV engineering. The conceptual design process recognized ROV reliability and availability as key requirements. Seatoools performed an FMEA study, and designed an ROV architecture that facilitates very high levels of system reliability. (Customizable)



SUR | INS | CON | INT |

## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

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INSPECTION

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CONSTRUCTION

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INTERVENTION

### B&T

BURIAL &

TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS

## WORK CLASS VEHICLES

### SMD

WWW.SMD.CO.UK | John Mccann | john.mccann@smd.sg



#### ATOM

Atom is an ultra-compact work class ROV comparable in size to a large electric ROV. The vehicle is suitable for renewable applications, drill support, survey and light construction duties and can be mobilized on vessels and rigs with limited deck space. Atom's high power to size ratio makes it an effective performer in high currents. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | WT | VSK



#### QUANTUM

Quantum has class leading payload, thrust and tooling power figures. It is designed primarily for heavy construction and salvage work but can also be used as an effective survey platform. Space within Quantum's frame for mounting tools and instruments is exceptional. This flexibility means better in-water performance and current holding capabilities when measured against rivals that need to use a skid. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | WT



#### QUASAR

The Quasar is the medium size vehicle in SMD's Q Series work class ROV range. Utilizing the latest multi-platform Curvetech™ components, the vehicle offers class-leading in-current performance, tooling and instrument space and access for maintenance. Quasar is an excellent all round performer capable of survey, construction and drill support operations. (Customizable)



### SUBMERSIBLE SYSTEMS INC.

WWW.SSIROVS.COM | Wolfgang Burnside | wolfgang@ssirovs.com



#### TRV-HD

The TRV-HD Extreme is a serious, compact work class vehicle with a very small footprint. When offshore real estate is at a premium the TRV-HD is the only logical choice. Most manipulator options are available.



## TECHNIPFMC SCHILLING ROBOTICS

WWW.TECHNIPFMC.COM | Hamish Stewart (Eastern Hemisphere) | Karen Matherne (Western Hemisphere) | schilling.sales@technipfmc.com



### ROBOTICS HD ROV

The 150hp HD ROV offers class-leading performance, reliability and productivity due to its intuitive design. The HD is an optimum choice for Installation, Maintenance and Repair (IMR), drill support, construction, ocean research, salvage and military scopes. Standard features include flight automation, HD ethernet video, sub-60 minute maintenance and onboard diagnostics to aid productivity of the vehicle, pilot, task and operations. (Customizable)



CON | INT | VC&L | A&T | CD | WT | VSK



### ROBOTICS UHD-III ROV

The 250hp UHD-III ROV is the ultimate heavy construction vehicle to perform subsea tasks. It features a configurable auxiliary hydraulic systems capable of delivering dual fluids (up to 100 US gallons) from onboard tanks, negating the requirement for skids to support construction, drilling, salvage and Installation, Maintenance and Repair (IMR) scopes. Standard features include flight automation, HD ethernet video, sub-60 minute maintenance and onboard diagnostics to aid productivity of the vehicle, pilot, task and operations. (Customizable)



CON | INT | VC&L | A&T | CD | WT | VSK



### SCHILLING ROBOTICS GEMINI® ROV

The 250hp GEMINI® ROV is designed to remain at the subsea worksite for extended periods, providing unprecedented subsea productivity by utilizing the tooling and services stored on the ROV and Tether Management System (TMS). The ROV is equipped with dual next generation manipulators, enabling the ROV to exchange subsea end manipulator tools and functionality without the requirement to return to surface, enabling multiple consecutive subsea operations. (Customizable)



CON | INT | VC&L | CD | WT | A&T | VSK

## TASKS

**OBS**  
OBSERVATION

**SUR**  
SURVEY

**INS**  
INSPECTION

**CON**  
CONSTRUCTION

**INT**  
INTERVENTION

**B&T**  
BURIAL &  
TRENCHING

## TOOLS

**VC&L**  
VIDEO CAMERA  
& LIGHTING

**NDT**  
NON-  
DESTRUCTIVE  
TESTING

**A&T**  
ACOUSTIC  
& TRACKING

**CD**  
CLEANING  
DEVICES

**VSK**  
VEHICLE STATION  
KEEPING

**WT**  
WORK TOOLS



## ESSENTIAL NEWS AND INSIGHTS FOR THE OCEAN MINING INDUSTRY

Ocean Mining Intel (OMI) is the leading resource for the news, views, and breaking stories shaping the emerging marine mining industry, presenting curated, impartial content to all interested parties from around the globe.

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» DriX's technological ecosystem includes custom designed and certified launch and recovery systems. (Image credit: Exail)



» DriX can operate in up to sea state 5 and achieve a top speed of 14 knots. (Image credit: Exail—Raphaël Chantelot)

## EMPOWERING AUTONOMY AT SEA

As the maritime industry makes its transition towards more efficient and environmental-friendly autonomous operations, Exail, a world-leading developer of industry-changing autonomous and uncrewed technologies, has been ramping up its production of DriX uncrewed surface vehicles (USVs) to meet the industry's growing need for efficient and sea-proven uncrewed platforms.

With over 20 DriX units in operation worldwide, Exail USVs, the first of which was launched back in 2017, have been in high demand from a range of industries in the ocean sector. Certified by Bureau Veritas (BV) and Lloyd's Register, the DriX USV has already been acquired, deployed, or used by several private and public operators for hydrographic survey missions, scientific monitoring, and other subsea positioning operations.

Customers include governmental institutions such as the US National Oceanic and Atmospheric Administration (NOAA), British Antarctic Survey (BAS), the Polish Navy, the French Hydrographic Institute (SHOM), or the French Research Institute for Ocean Science (Ifremer), as well as survey contractors and operators in the energy market such as Total Energies, Ocean Infinity, Sulmara, WAMS, and other rental companies including Unique.

To help clients and partners transition towards remotely supervised maritime operations, Exail has developed an entire technological ecosystem around the DriX USV, which comprises certified launch and recovery systems, towed vehicles, purpose-made payload gondola adaptations, supervision software, and a comprehensive customer

service offering. Exail believes that this end-to-end uncrewed ecosystem is the key to enabling efficient and successful uncrewed operations, from coastal shallows to deeper offshore waters.

### BEST-IN-CLASS USV

On the back of five years of successful integration into field operations around the world, the DriX USV is now recognized as a best-in-class USV for delivering operational efficiency and quality data. Owing to its unique sea keeping capabilities and the tight integration of its acoustic payloads, the DriX USV can operate safely in up to sea state 5.

Thanks to the USV's optimized energy efficiency—DriX boasts a very low fuel consumption rate compared to traditional vessels—the USV is able to execute long endurance, multiday missions at sea, while ensuring a significant reduction to the environmental footprint associated with complex marine operations.

### CORTIX SOFTWARE

Exail's Cortix software framework powers the USV's autonomy, navigational safety, data management, and over the horizon (OTH) operations. Cortix relies on an advanced architecture with a web-based interface that can be accessed either as an Edge or Cloud solution.

Exail further provides various levels of API (Application Programming Interface) as per users' specific needs to guarantee the smooth integration of any third party software package.

### OVER THE HORIZON OPS

With its multi-channels redundant communication system, the DriX USV can support both line of sight (LOS) or over the horizon (OTH) operations. This system includes 4G, Kongsberg Broadband Radio, Silvus Network Radio, Iridium Certus, or Starlink Satellite. In full OTH mode, DriX is further able to select the best communication mode depending on the environment, while smartly managing the use of bandwidth to guarantee critical data priorities.

### MULTI-VEHICLE COLLABORATION

Deploying multiple maritime drones—subsea and surface assets—to work collaboratively is one of the next frontiers in the field of maritime autonomy.

Used as a surface gateway that supports AUV and ROV subsea operations in terms of acoustic communication or positioning, the DriX USV has one of the most established track-records in supporting multi-vehicles deployments.

With its uniquely low acoustic signature, the DriX gondola, located 2 meters below the surface, provides an optimal environment for the conveyance and operation of acoustic positioning and ACOM equipment. Acoustic equipment can therefore be operated with the lowest surface interferences and be used at their best performance, resulting in highly reliable AUV/ROV communication and tracking while the subsea assets conduct their missions.

For more information, visit. [www.exail.com](http://www.exail.com).

**ON&T**

2023

# TOWED & BOTTOM CRAWLING VEHICLES



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## TOWED & BOTTOM CRAWLING VEHICLES

### BAYONET OCEAN VEHICLES

WWW.BAYONETOCEAN.COM  
Nick Hartman | sales@bayonetoceanc.com



#### BAYONET 150

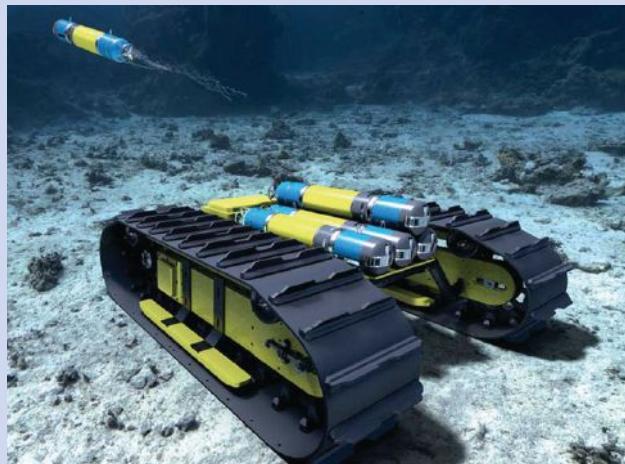
125 lb autonomous crawling robot for a range of environmental, commercial and military tasks in nearshore, estuarine and inland locations. Two person portable vehicle for non heavy weather, small boat deployment and smaller payloads. Dimensions: 33x20x10 inches. Standard Open Deck Space: 24x6 inches. Weight (with batteries): 125 lbs. Duration Dry/Wet: 22/10 miles. Deck Capacity: 350 lbs. Ground Pressure—Dry/Wet: 0.15/0.08 psi



CON | INT | OBS | VC&L | A&T | CD

### BAYONET OCEAN VEHICLES

WWW.BAYONETOCEAN.COM | Nick Hartman | sales@bayonetoceanc.com



#### BAYONET 250

Medium payload autonomous crawling robot for a range of environmental, commercial and military tasks in nearshore, estuarine and inland locations. Tool free in field assembly for two person portability and design allows heavier weather and larger payloads. Standard Dimension: 48x52x14 inches. Heavy Duty Dimension: 60x60x16 inches. Weight (with batteries): 250 lbs. Duration Dry/Wet: 24/10 miles. Deck Capacity: 850 lbs (max component 75 lbs). Drawbar Pull: 800 lbs. (Customizable)



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### BAYONET OCEAN VEHICLES

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#### BAYONET 350

High payload, modular autonomous crawling robot performs a vast range of tasks in beach, surf or deep-water conditions. Capable of handling the harshest conditions and largest payloads. Dimensions: 5x6x1 ft (1.5x1.8x0.3 m). Weight: 600 lbs (272 kg) Modular, fits in Subaru. Weight (with batteries): 125 lbs. Depth: 109 yards (100 m). Speed: 1.8 km/hr. Deck capacity – dry: 1102 lbs. (500 kg). (Customizable)



CON | INT | OBS | VC&L | A&T | CD

### BELLAMARE, LLC

WWW.BELLAMARE-US.COM  
info@bellamare-us.com



### REMOTELY OPERATED TOWED VEHICLES - ROTVS

Passive sleds are best suited for deeper applications, and when depth of operation is controlled by how much cable is paid in and out. Active sleds are fitted with dive wings and/or elevons that the operator can control from the ship. They are used when the applications call for frequent undulations or altitude keeping, etc. (Customizable)



### CENTURION SUBSEA SERVICES

WWW.CENTURIONSUBSEASERVICES.COM  
info@centurionsubseaservices.com



#### TRACK ROV

The TRACKROV system is designed to deploy and operate the Pangeo Sub Bottom Imaging system. It can also be equipped with large dredge pumps and a suite of survey sensors such as imaging sonars, magnetometers, cameras, lights and manipulators to perform closer inspections of potential targets during the survey. The system can be either deployed with the vessel crane or via a small independent marine crane. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | CD  
WT | NDT | VSK

## DEEP TREKKER INC.

WWW.PIPETREKKER.COM | Sales | sales@deptrekker.com



### A-150 PIPE CRAWLER

The A-150 crawler is perfect for inspecting smaller diameter pipelines (6 to 24 in or 150–600 mm). With rugged construction of anodized aluminum and stainless steel, plus a sapphire camera lens cover, it thrives in harsh environments. Equipped with a 50 m depth rating, full HD camera (360° pan, 280° tilt), and seamless recording to NASSCO compliant PACP reports with GIS integration. (Customizable)



CON | VC&L | A&T



### A-200 PIPE CRAWLER

A-200 is a rugged crawler designed for navigating tough terrain and large pipes (8 in+). Constructed with industrial-grade anodized aluminum and stainless steel, it can withstand harsh environments. With a 50 m depth rating, full HD 360° pan, 280° tilt, and 120x zoom camera (10x Optical/12x Digital), the A-200 excels in demanding pipe inspections. (Customizable)



CON | VC&L | A&T

## DEEP TREKKER INC.

WWW.DEEPTREKKER.COM

Sales | sales@deptrekker.com



### CCTV PIPE CRAWLERS

Pipeline inspections have never been easier to conduct. Say goodbye to a dedicated truck and hello to a reliable and robust system. Pilot through wet or dry pipes using the hand-held controller and don't worry about using a generator, as our pipe crawlers are completely battery operated. (Customizable)



OBS | VC&L

## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

### INS

INSPECTION

### CON

CONSTRUCTION

### INT

INTERVENTION

### B&T

BURIAL & TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

## NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS

## DEEP TREKKER INC.

WWW.DEEPTREKKER.COM | Sales | sales@deptrekker.com



### DT320 MINI PIPE CRAWLER

Meet the battery powered mini pipe crawler inspection system. This mini CCTV sewer inspection camera is capable of inspecting 6-inch lined pipes (152 mm) and even undersized 6-inch diameters. It is constructed with the same design as the larger DT340; rugged stainless steel aluminum body, durable sapphire glass lens cover and clear HD pan/tilt camera. (Customizable)



OBS | VC&L | A&T | VSK



### DT640 UTILITY CRAWLER

The DT640 Utility Crawler is versatile and robust for challenging underwater and hard-to-reach areas. With rubber or magnetic wheel options and a three-wheeled design for zero turn radius, it excels in maneuverability. Equipped with attachments for pressure washing, vacuuming, thickness testing, and more, the DT640 ensures easy, safe, and cost-effective water storage tank cleaning. (Customizable)



CON | VC&L | A&T | CD

## DWTEK CO., LTD

DWTEKMARINE.COM

info@dwtek.com.tw



### SPECIAL USE CRAWLER

Crawler, a versatile and powerful ROV, created to work both on land and in water to fly and drive on the seabed, can be used in many scenarios with different tooling for inspection, repair operations, and so on. (Customizable)



VC&L | A&T

## TOWED & BOTTOM CRAWLING VEHICLES

### EDGETECH

WWW.EDGETECH.COM | Sales | info@edgetech.com



#### EDGETECH 2050

The EdgeTech 2050-DSS is the latest product to combine EdgeTech's highly successful line of side scan sonars and sub-bottom profilers into one fully integrated system. This is especially useful where high resolution sub-bottom profiler data, that requires the system to be towed near the seabed, is required.



#### EDGETECH 2300

This deep-water combined side scan sonar and sub-bottom profiler system integrates the highly successful line of side scan sonars, sub-bottom profilers and (optional) MPES bathymetry into one fully integrated 2,000 meter rated system.



CON | INT | B&T | A&T | WT



#### EDGETECH 2400

EdgeTech's 2400 Series is a fully integrated combined side scan sonar (with optional wide swath MPES bathymetry) & sub-bottom profiling system designed for deep water operation in depths up to 6,000 m. The 2400 can be completely configured by the user to best suit the applications at hand. The system comes with a dual simultaneous frequency side scan sonar with a choice of 75 kHz, 120 kHz or 410 kHz frequencies; any of which can be paired together. The 2400 also comes with the choice of a wideband sub-bottom profiler. Frequency options for the sub-bottom profiler are 1–10 kHz, 2–16 kHz or 4–24 kHz.



CON | INT | B&T | A&T | WT



#### EDGETECH 3400

EdgeTech 3400 provides users many enhancements to current sub-bottom profiler systems. The 3400 is a wideband Frequency Modulated (FM) sub-bottom profiler utilizing EdgeTech's proprietary Full Spectrum CHIRP technology. The system generates high resolution images of the sub-bottom stratigraphy in oceans, lakes, and rivers and provides excellent penetration in various bottom types. The EdgeTech 3400 comes in a dual 2–16 kHz transducer configuration. The EdgeTech 3400 Sub-bottom Profiling System comes as a complete package and includes a towfish, cable and a topside processor running EdgeTech's DISCOVER sub-bottom acquisition & processing software.



CON | INT | B&T | A&T



#### EDGETECH 4125I

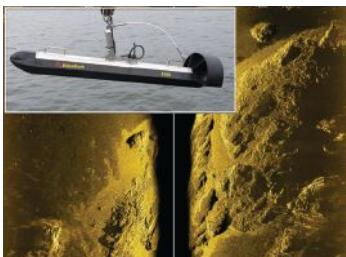
EdgeTech's 4125i Side Scan Sonar System was designed with both the Search & Recovery (SAR) and shallow water survey communities in mind. The 4125i utilizes EdgeTech's Full Spectrum® CHIRP technology, which provides higher resolution imagery at ranges up to 50% greater than non-CHIRP systems operating at the same frequency. This translates into more accurate results and faster surveys, thus cutting down on costs. Two dual simultaneous frequency sets are available for the 4125i depending on the application. The 400/900 kHz set is the perfect tool for shallow water survey applications, providing an ideal combination of range and resolution. The 600/1,600 kHz set is ideally suited for customers that require ultra high resolution imagery in order to detect very small targets (SAR).



CON | INT | B&T | A&T

## EDGETECH

WWW.EDGEYTECH.COM | Sales | info@edgetech.com



### EDGEYTECH 4205

The next generation 4205 is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4205 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys. In addition to the high-resolution imagery that EdgeTech is known for, the 4205 comes with a number of new features which makes the system even more flexible and powerful in offshore operations.



CON | INT | B&T | A&T | WT



### EDGEYTECH 6205

The 6205, a Multi Phase Echo Sounder (MPES) produces real-time, high resolution, three dimensional (3D) maps of the seafloor while providing co-registered simultaneous dual frequency side scan imagery. Utilizing EdgeTech's Full Spectrum® technology, the 6205 exceeds IHO SP-44, NOAA and USACE specifications for feature detection and bathymetric point data uncertainty. Near shore and shallow water hydrographic surveys are completed faster and safer utilizing the 6205 due to the wide swath (over 200° view angle).



CON | INT | B&T | A&T | WT



### EDGEYTECH 6205s2

The EdgeTech 6205s2 is our 4th generation fully integrated Wide Swath Bathymetry and Dual Frequency Side Scan Sonar System that produces real time, high resolution, side scan imagery and three-dimensional maps of the seafloor. The 6205s2 overcomes the limitations of Multi Beam Echo Sounders (MBES) and Interferometric (Phase Differencing) systems in shallow water by using EdgeTech's unique Multi-Phase Echo Sounder (MPES) technology.



## TASKS

**OBS**  
OBSERVATION

**SUR**  
SURVEY

**INS**  
INSPECTION

**CON**  
CONSTRUCTION

**INT**  
INTERVENTION

**B&T**  
BURIAL &  
TRENCHING

## TOOLS

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& LIGHTING

**NDT**  
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DESTRUCTIVE  
TESTING

**A&T**  
ACOUSTIC  
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KEEPING

**WT**  
WORK TOOLS

- Highly Portable
- Commercial grade
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- 1,000' depth capability
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- Pan & tilt front **AND** rear cameras come standard
- Starting at \$20,995



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## A Vehicle Used to Search all Environments...

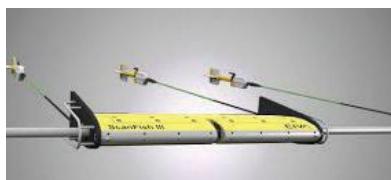
safe and quickly with a JW Fishers commercial grade ROV



## TOWED & BOTTOM CRAWLING VEHICLES

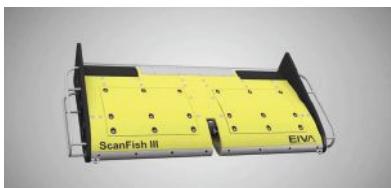
### EIVA A/S

WWW.EIVA.COM | EIVA Sales Department | eiva@eiva.com



#### SCANFISH KATRIA

The ScanFish Katria is an intelligent wide-sweep Remotely Operated Towed Vehicle (ROTV) solution for time-efficient magnetometer surveys. As it comes with high-sensitivity magnetometers for maximum target detection efficiency, it is an effective tool for detection of sub-bottom magnetic anomalies. (Customizable)



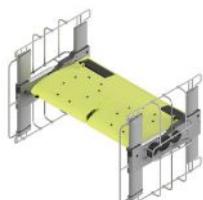
#### SCANFISH ROCIO

The ScanFish Rocio is a multi-purpose ROTV solution covering a wide variety of oceanographic survey disciplines. Its high payload allows you to fit several different pieces of equipment. This versatile platform will meet your specific needs and streamline your survey operations by combining all survey tasks in one flexible solution. (Customizable)



#### SCANFISH TROPHEUS

The ScanFish Trophus is an ROTV especially designed for UXO detection that eliminates data uncertainty with high-quality seabed imaging. It functions as a depressor of any side-scan sonar and is the optimum solution in terms of quality, efficiency and safety. (Customizable)



#### SCANFISH XL

ScanFish XL is the largest and latest addition to EIVA's family of ScanFish remotely operated towed vehicles (ROTVs). Designed to host a payload of up to 400 kg, ScanFish XL offers freedom from sensor and instrumentation limitations of a typical ROTV, enabling comprehensive multi-instrument data collection with every runline. (Customizable)



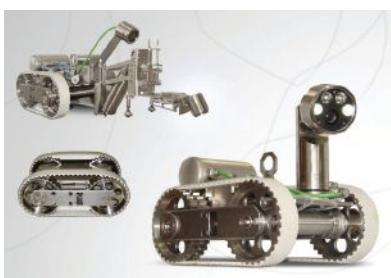
#### VIPERFISH

ViperFish is an all-in-one ROTV system tailored to provide high-resolution data collection in autonomous USV operations. With its high stability, 3D steering and automation, it is ideal for surveying narrow areas where a precisely steered sensor platform is needed to safely stay close to the seabed. (Customizable)



### EXAIL

WWW.EXAIL.COM | Antony Penn | sales.robotics@exail.com



#### CEP75

Multidirectional remotely operated electric crawler for operations inside pipes or pools. Watertight up to 20 m, it can transport a 75 kg payload. Its modular design allows embarking up to 3 TV cameras, and a mini electric manipulator arm.



#### PIPE CRUISER

Designed for inspection in any type of pipes (diameter 150 to 2,000 mm, up to 500 m length), this multidirectional modular system avoids obstacles, turns in curves, swivels and moves back to deliver real-time exceptional quality videos and measurements. Watertight up to 10 m.



#### ROVING BAT

Hybrid ROV and crawler, Roving Bat can swim as an ROV and, thanks to 4 vertical thrusters, it tilts, rolls and sticks well onto vertical surfaces, such as ship hulls. Then it crawls along to perform inspection, cleaning operations and NDT measurements. Roving Bat is the optimal solution for UWILD applications.



## EXAIL

WWW.EXAIL.COM | Antony Penn | sales.robots@exail.com



### T18-M

T18-M is a battery-powered towed interferometric synthetic aperture sonar (inSAS) for Real Time Detection, Classification and Mapping (SCM) of seabed and moored mines. It is equipped with a thinner umbilical cable and a lighter equipment for easier deployment from a USV or other platform. The T18-M is specifically designed to meet all recommendations related to mine warfare operations (particularly the detection and classification phases). (Customizable)



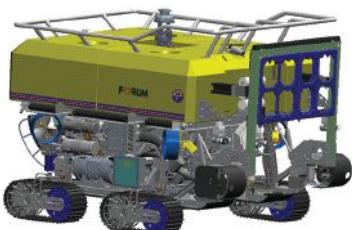
B&T | VC&L

## FORUM ENERGY TECHNOLOGIES

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PERRY XT300



PERRY XT500



PERRY XT600



XT1200/1500

The Perry® XT range of trencher vehicles are designed to meet the demanding trenching requirements of both strong soils and deep flowline burial protection over long stretches. Capable of operating in free-fly, skid-based trenching and survey modes, these vehicles represent extremely capable, high-performance product burial solutions. (Customizable)



B&T | VC&L | A&T | WT

## INTERNATIONAL SUBMARINE ENGINEERING LTD. (ISE)

WWW.ISE.BC.CA | Sales | info@ise.bc.ca



### ISE AURORA SONAR TOWFISH

The Aurora Towfish is actively stabilized using 4 independently actuating aft planes and actuated main wing capable of generating up to 50 kN of downforce. It collects high resolution data at up to 12 knots, with faired or unfaired cables, down to depths of 200 m while navigating in either depth or terrain follow mode. The Aurora Towfish can carry full size AUV payloads including SSS, SAS, MBES, etc., shown here with Klein 5900 and R2Sonic 2024. (Customizable)



OBS | SUR | INS | VC&L | A&T

## TASKS

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## TOOLS

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CD  
CLEANING DEVICES

VSK  
VEHICLE STATION KEEPING

WT  
WORK TOOLS

## TOWED & BOTTOM CRAWLING VEHICLES

### JW FISHERS MFG.

WWW.JWFISHERS.COM

Brian Fisher | info@jwfishers.com



#### SBP-1 SUB BOTTOM PROFILER

Fishers SBP-1 is an economical sub bottom profiler that shows the strata layers beneath the ocean floor as well as objects buried in the bottom.



#### TASKS

OBS  
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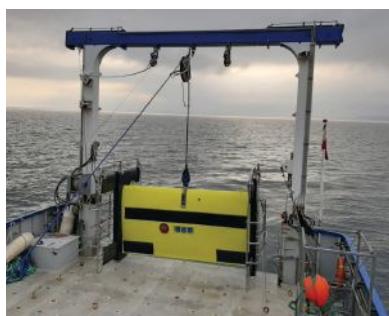
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KEEPING

WT  
WORK TOOLS

### KRAKEN SONAR SYSTEMS INC.

WWW.KRAKENROBOTICS.COM | Sales | sales@krakenrobotics.com



#### SEAKITE

The SeaKite™ is Kraken Robotics' next generation SBI deployment method, utilizing a Remotely Operated Towed Vehicle (ROTV) incorporated into the SBI. The high-speed depth of burial platform that operates in water depths from 7-250 m and is 6x faster than ROV surveys by travelling at speeds up to 4 kts. Having the same benefits as the ROV mounted SBI, the SeaKite™ images both ferrous and nonferrous anomalies.



B&T

### KRAKEN SONAR SYSTEMS INC.

WWW.KRAKENROBOTICS.COM | Sales | sales@krakenrobotics.com



#### ACOUSTIC CORER™

The Acoustic Corer™ is a subsea surveying technology that interrogates the sub-seabed to optimize offshore installation programs. Its capabilities include buried boulder identification and support for foundation location selections and foundation engineering design. The Acoustic Corer™ fills the gap between current geophysical and geotechnical site investigation methods by providing a 3D acoustic core 14 meters in diameter penetrating up to 60 meters into the sub-seabed.



CON | A&T



#### KATFISH™

KATFISH™ is an intelligent towed SAS system. This product acquires over 3 billion pixels per 3 km² per hour of area coverage rate. That's 30 times more detail than conventional side scan sonar. Advanced algorithms perform thousands of adjustments per second to ensure every pixel displays data with incredible clarity. (Customizable)



CON | A&T

### MACARTNEY

WWW.MACARTNEY.COM

Sales | sales@macartney.com



#### FOCUS 2

FOCUS 2 uses advanced computer technology and fiber optic telemetry for efficient vehicle and sensor communication, delivering high data capacity. It operates in depths of up to 400 m at up to 10 knots with pre-programmable horizontal and vertical movement. Suitable for various sensor packages. Proven, stable and cost-effective survey solution. (Customizable)



CON | INT | VC&L | A&T | B&T

# Breaking the speed barrier

BIRNS 6km-rated interconnect breakthroughs offer three new ways to maximize your subsea power and data transfer speeds. Our new advancements have broken previous barriers in Gigabit Ethernet, RF and optical cable assembly technology, resulting in some impressive performance characteristics that will make measurable improvements in your system.



Gigabit Ethernet assemblies with previously unheard of 9.4+ Gb/s data transfer rates, with BIRNS exclusive high-performance cable for Cat 8.2 use.



RF and electro-RF assemblies with open face pressure ratings, plus  $\leq 0.7\text{dB}$  insertion losses and  $\leq 1.60$  VSWR up to 3GHz—in 50 $\Omega$  and 75 $\Omega$  formats.



Optical and electro-optical assemblies with lightning-fast data speeds and extreme cold, extreme depth pressure resistance: 0.1dB insertion loss at 6km at <2°C.



*High Performance . . .  
Under Pressure®*

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BIRNS is NAVSEA PRO-020 Certified;  
Our Quality Management System is  
ISO 9001:2015 Certified by DNV

## TOWED & BOTTOM CRAWLING VEHICLES

### MACARTNEY

WWW.MACARTNEY.COM | Sales | sales@macartney.com



#### FOCUS 3

FOCUS 3 is the ideal platform solution for high-precision survey applications: wide and cost-effective swath range, high and flexible payload capacity, and target detection via sonar technology. Carbon fiber wing sections and instrumentation pods in anodised aluminum, enabling up to 1,000 m operating depths. Available with eBOSS for UXO detection. (Customizable)



CON | INT | VC&L | A&T | B&T

#### TASKS

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BURIAL &  
TRENCHING

#### TOOLS

VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC  
& TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

### QINETIQ NORTH AMERICA

WWW.QINETIQ-NA.COM | Ken Heller | Ken.heller@qinetiq-na.com



#### C-TALON

Underwater derivative of the US Military fielded TALON platform. This platform is geared towards research and exploration users who are looking for an Underwater Crawler to operate in the Surf Zone, River-Estuuarine Environments or Limited-Access Harbor Areas. The platform is designed specifically for customization and tuned to customer specific needs.



#### TRIAXUS

TRIAXUS is developed for highly efficient oceanographic data acquisition. Operational depths between 1 and 350 meters, speed up to 10 knots and at vertical velocities of up to 1 m/s. Robust and hydrodynamic design and lightweight carbon fiber hull boasting a powerful control system plus high payload capacity. (Customizable)



CON | INT | VC&L | A&T

### MARISCOPE MEERSTECHNIK

WWW.MARISCOPE.DE

Niklas Becker | n.becker@mariscope.de



#### MINI OBSERVER/OBSERVER III

Able to be equipped with a vast variety of sensors and instruments. 500 mts depth rated (or more on request), Full HD cameras, extreme output LED lights, complete stainless steel frame (TIG hand welded and crystal blasted), variable payload. We specialize in one-of-a-kind development. Lifetime warranty. (Customizable)



INT | VC&L | A&T

### SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM

Sales | info@searobotics.com



#### HULLBUG

Semi-autonomous hull grooming system that deploys a series of integrated sensors and magnetic drive wheels to navigate a ship's hull and disrupt the early presence of biofouling. Light brushes gently detach accumulated biofouling while a submersible suction pump removes and captures it altogether, resulting in fuel efficiency gains and cleaner waters.



INS | VC&L | CD



# AUTONOMOUS UNDERWATER GROUND VEHICLES



» The Bayonet 250 offers tool-free assembly and a deck capacity of 250 lbs. (Image credit: Bayonet)

Headquartered alongside Greensea Systems Inc. in Richmond, Vermont, with operations in Plymouth, Massachusetts USA, Bayonet's autonomous underwater ground vehicles (AUGVs) are a series of amphibious tracked vehicles that can perform numerous tasks including transitioning from deep ocean into the surf zone and onto the beach, making them a powerful tool for operators working in multiple nearshore marine environments.

## STABLE AND ADAPTABLE

All three models of amphibious crawler are built on OPENSEA from Greensea Systems, providing the vehicles with the most stable and adaptable operating systems in marine robotics. This partnership gives a Bayonet AUGV owner access to important capabilities such as precise navigation, vehicle autonomy, remote operation, component, and payload integration not currently offered by anyone else in the tracked vehicle market.

## THE BAYONET LINEUP

The three vehicle sizes—the Bayonet 150, 250, and 350—allow customers to scale the vehicle size, configuration and power to meet the demands of the payload, operation duration, and environment.

The Bayonet 150 is a two-person portable vehicle for non-heavy weather, small boat deployment and smaller payloads with standard dimensions of 33x20x10 inches. The unit has a dry range of 22 miles, 10 miles for wet operations.

The next size up vehicle, the Bayonet 250 also offers two-person portability and tool-free assembly in the field. With a deck capacity of 250 lbs, it is designed to resist heavier weather and support more substantial payloads. Standard dimensions are 48x52x14 inches.

The Bayonet 350 is the largest model of the portfolio, capable of handling the harshest conditions and the heavier payloads, with a deck capacity 350 lbs. Standard dimensions are 5x6x1 ft. Capable of speeds of 1.8 km/p/h, the unit is depth rated to 100 meters.

## LITTORAL WORKHORSE

Deployed from land or water, independent of weather, the Bayonet AUGV has been designed to transit along the ocean floor as well as on land, making it the only robotic platform in the world capable of working from the beach through the surf zone and out to 100 meters in depth.

Bayonet AUGV use cases include hydrographic survey, wind farm survey and maintenance, littoral defense such as UXO/mine detection and clearance, coastal dredging support, environmental monitoring of the seafloor, beach zone, rivers and marshes, and wharf inspections.

Fitted with a variety of optional environmental, oceanographic, hydrographic, benthic and industry specific sensors the Bayonet AUGV makes work in the littoral zone easy by carrying larger sensor payloads on the seafloor, to accommodate numerous commercial and military applications.

For more information, visit: [www.bayonetoocean.com](http://www.bayonetoocean.com).



» AUGVs are for missions in the surf zone. (Image credit: Bayonet)

## TOWED & BOTTOM CRAWLING VEHICLES

### SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM | Sales | info@searobotics.com



#### TANKBUG

Underwater tank cleaning system that removes divers from dangerous situations by inspecting, cleaning, and removing heavy or dense sediment from water tanks. This detailed inspection also identifies any hidden corrosion or structural compromise, helping operators to safeguard against individual risk and costly maintenance or repairs.



INS | VC&L | CD

### SMD

WWW.SMD.CO.UK | Rob Eddon | rob.eddon@smd.co.uk



#### BFP - BACKFILL PLOUGH

The backfill plough (BFP) is designed for compatibility with the VMP trenching plough to cover rigid pipes or flexible umbilicals in the oil and gas industry. SMD has supplied pipeline ploughs for over 35 years to various customers and projects. The BFP incorporates design features to allow it to operate on very soft soils without significant sinkage including large support skids and minimum weight. (Customizable)



#### CBT1100

Provides a soft to hard ground burial solution in one neat package. Fully amphibious 800 kW vehicle. Equipped with a powerful chain cutter, dredge pump and jet legs. A well proven chain cutter deployment system allows post lay burial of cable up to 300 mm and 4.0 m MBR. (Customizable)



#### CBT2100

Draws on SMD's experience of track driven vehicles, trenching and cable handling subsea to provide a soft to hard ground burial solution. A fully amphibious vehicle equipped with interchangeable tooling cassettes including powerful chain cutter, dredge pump and jet legs. (Customizable)



#### CBT3200

Provides a soft or hard ground burial solution in one neat package. Also available as a burial tractor configured for pipeline burial. Equipped with a selection of powerful chain cutter trenching tools, dredge pumps and jet legs. Well proven chain cutter deployment systems allow pre or post-lay burial of cables up to 300 mm diameter and 5.0 m MBR, and pipelines up to 1.5 m diameter. (Customizable)



#### HD3-200

Based on proven SMD plough technology, the HD3-200 inter array plough provides a high performance trenching solution for large diameter power cables up to 200 mm. Using patented technology, the plough is designed to minimize pull force requirements and provide effective trenching capability up to 2.4 m depth. The diverless loading and unloading system allows post lay burial in deepwater.



**HD3-300**

Based on the proven SMD plough technology, the HD3-300 flexibles plough provides a high performance trenching solution for large diameter flexible umbilicals and power cables. Using patented technology, the plough is designed to minimize pull force requirements and provide effective trenching capability up to 3.3 m depth and up to 3.0 m of cover. The diverless loading system also allows post lay burial in deepwater.

**MD3-160**

A high-performance trenching solution for large diameter flexible umbilicals. Using patented technology the plough is designed to minimize pull force requirements and provide effective trenching capability up to 3.0 m depth. Coupled with a tow winch, umbilical and LARS, SMD are able to supply a turnkey flexible solution.

**PRE-LAY PLOUGH (PLP)**

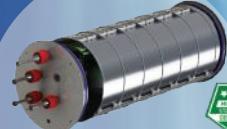
The newest addition to SMD's plough range is the multi-function pre-lay plough offered in a number of configurations for boulder clearing, trenching and/or backfill. Available with a 150 Te and 200 Te tow load, this one plough can be set up to carry out any combination of these processes making it economical in both cost and time, minimizing lay risk and maximizing lay speed. (Customizable)

**QTRENCHER 400**

Uses high voltage supply to provide effective cable maintenance and other specialized tasks. Purpose designed to provide maximum jetting and thrust performance. Has a reputation for reliability and ease of maintenance and has become an essential part of any cable installation vehicle suite. Turnkey cable maintenance solution including LARS and umbilical. (Customizable)



# Ocean Power



Vehicle Batteries &amp; Charger



**TASKS**  
OBS  
OBSERVATION

**SUR**  
SURVEY

**INS**  
INSPECTION

**CON**  
CONSTRUCTION

**INT**  
INTERVENTION

**B&T**  
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**TOOLS**

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Standard Batteries



Energy Storage System



Subsea-UPS

## Li-Ion PowerPack™ - Underwater power solutions

Highly reliable, efficient and safe Li-Ion batteries

Made for harsh offshore and subsea conditions such as

- offshore Oil & Gas,
- scientific and
- AUV or ROV equipment



# TOWED & BOTTOM CRAWLING VEHICLES

## SMD

WWW.SMD.CO.UK | Rob Eddon | rob.eddon@smd.co.uk



### Q-TRENCHER 500

The Q-Trencher 500 ROV provides high power trenching capability for the burial of cables up to 3 m deep. The ROV uses variable high flow or high pressure jetting to optimize the trenching to suit the conditions. It can also deploy a rear eductor to enhance burial of large diameter products. Using a forward jet tool it can maneuver to bury tight loops. Its high thrust enables rapid post lay survey. It can also be fitted with a suite of tools for maintenance operations. SMD offer a turnkey, integrated solution including SMD designed high sea state LARS and umbilical system. (Customizable)



### Q-TRENCHER 600

Uses high voltage supply to provide effective cable maintenance with other specialized tasks. Purpose designed for maximum jetting and thrust performance. Optimized with a single 4.1kV hydraulic power unit to achieve 600 hp in a compact package. Turnkey solution including SMD designed high sea state LARS and umbilical. (Customizable)



### Q-TRENCHER 800

Using variable high flow or high pressure jetting, the Q-Trencher 800 can optimize trenching in a number of soil conditions. In addition it can also deploy a rear educator or backwash sword to enhance burial of large diameter products and provides high thrust enabling rapid post lay survey. (Customizable)



### Q-TRENCHER 1000

Provides high power trenching capability for the burial of cables, umbilical and small diameter pipes up to 3 m deep. Uses variable high flow or high-pressure jetting to optimize the trenching to suit the conditions. Can also deploy a rear eductor to enhance burial of large diameter product. With its high thrust, the ROV can perform rapid post lay survey. Can also be fitted with a suite of tools for maintenance operations. (Customizable)



### Q-TRENCHER 1400

High powered free-swimming jet trencher. Optional track drive for enhanced burial capability. Optional tracked skids for bespoke tool deployment. More than 1.0 megawatt of total power. Delivers 0.75 megawatts of variable high pressure jetting power for trenching and up to 200 kw of low pressure water jetting for trench backwash, eduction or trench collapse. (Customizable)



### Q-TRENCHER 1600

The Q-Trencher 1600 is a high powered free-swimming jet trencher, with optional track drive for enhanced burial capability and optional tracked skids for bespoke tool deployment. With 1.2 MW of total power, the trencher delivers 800 kW of variable high pressure jetting power for trenching and up to 300 kW of LP water jetting for trench backwash, eduction or trench collapse. (Customizable)



## TASKS

### OBS OBSERVATION

### SUR SURVEY

### INS INSPECTION

### CON CONSTRUCTION

### INT INTERVENTION

### B&T BURIAL & TRENCHING

### TOOLS

- VC&L  
VIDEO CAMERA & LIGHTING

### NDT NON- DESTRUCTIVE TESTING

### A&T ACOUSTIC & TRACKING

### CD CLEANING DEVICES

### VSK VEHICLE STATION KEEPING

### WT WORK TOOLS



# SHARP DATA | ANYTIME |



**NemoSens®**  
VERSATILE MICRO AUV

**RTSYS**  
Underwater Acoustics & Drones

[rtsys.eu](http://rtsys.eu)

## TOWED & BOTTOM CRAWLING VEHICLES

### SMD

WWW.SMD.CO.UK | Rob Eddon | rob.eddon@smd.co.uk



#### Q-TRENCHER 2800

The 60 Te Q-Trencher (QT) 2800 ROV is the world's most powerful free-swimming jet trencher. With more than 2 megawatts of total power, the trencher delivers 1.5 megawatts of jetting power. The complete system spread sets a new standard in severe weather deployment and operation. (Customizable)



#### SD2 160

SMD's standard plough is a lightweight, lower cost, high quality option for cable ploughing for use in most soils. It has the added benefit of a secondary share for effective repeater burial. The standard plough can create a trench up to 1.5 meters deep in water depths up to 2,000 meters. (Customizable)



#### VARIABLE MULTIPASS PLOUGH (VMP)

Building on SMD's reputation for the continuous development of plough technology, the Variable Multipass Plough range introduces further improvements and optimization of the well proven SMD multipass pipe plough. These models offer enhanced variable multipass capability, allowing the operator to remotely adjust the depth during trenching.



### TASKS

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#### WT WORK TOOLS

### SUBC IMAGING

WWW.SUBCIMAGING.COM

Ian McMillan | ian.mcmillan@subcimaing.com



#### TOW CAMERA SYSTEM

Durable, high-performance system to capture and store underwater observations in 4K & HD. Reliable alternative to expensive AUV and ROV deployments. Collect thousands of high-quality seafloor images, hours of video, and data. Includes 410 m of kevlar tow cable, real-time video feed, LEDs, and lasers for precision and superior footage.



CON | INT | VC&L

### SUBSEA TECH

WWW.SUBSEA-TECH.COM

Sales | st.sales@subsea-tech.com



#### ASPIROV

AspiROV is an ultra-portable robot especially designed for visual inspection and cleaning of fire fighting, industrial and potable water tanks. Based on the Guardian mini-ROV design, it can be operated in inspection mode (navigation in open water) or in cleaning mode thanks to its rolling skid. (Customizable)



INT

### TELEDYNE SEABOTIX

WWW.TELEDYNEMARINE.COM

Jamie Carrig | jamie.carrig@teledyne.com



#### VECTORED LITTLE BENTHIC CRAWLER (VLBC)

Unmatched in versatility, the SeaBotix vLBC is a revolutionary approach to ship hull and infrastructure inspection for a wide range of military and commercial applications. With no magnets or thrusters (churning the water, impeding visibility), SeaBotix Crawlers employ the patented Vortex Generator to attach to any relatively flat, hard surface with up to 22+ kgf (48 lbf) of attraction force. With no relative motion between the inspection surface and the sensors, output data is the highest quality possible and operator fatigue is greatly reduced. (Customizable)



CON | B&T | A&T



» The mission-ready REVOLUTION has enhanced capabilities and advanced stabilization for deeper depths, shown with imaging sonar and a grabber. (Image credit: Deep Trekker)

Deep Trekker is headquartered in Kitchener, Ontario, Canada, known as the Silicon Valley of the North—a hub for technological engineering and advancements. The company employs globally with over 20 dedicated engineers. All engineering and manufacturing activities are completed in-house, with sales in over 100 countries and a second company office in Latin America.

#### HISTORY OF DEEP TREKKER

Established in 2010, Deep Trekker was born from a serendipitous moment.

Co-founder and President, Sam MacDonald explains: "I grew up in the Great Lakes area of Ontario, Canada and there are thousands of shipwrecks. I wasn't a scuba diver at the time so I was looking for something that would really allow me to get into the story and see the shipwrecks from below. It all started one night when I dropped a flashlight off my boat in Lake Huron and I said, 'You know, what we really need is a robot to get that...' It started out as a bit of a joke, but then I really got interested in the concept and the idea of designing such a device."

#### ENGINEERED TOUGH

Built from industrial-grade materials, such as machined anodized aluminum and carbon fiber, Deep Trekker drones are engineered to withstand the harshest environments, with no maintenance required, thanks to a magnetically coupled drive system, eliminating the need for gasket replacement, or nitrogen gas filling.

#### AUTONOMOUS FUNCTIONALITY

Deep Trekker ROVs seamlessly fuse all sensor data into one handheld, weatherproof controller for autonomous control. See direct imaging sonar feed, with advanced autonomous stabilization and position tracking—all alongside the ROV live video feed.

#### DIRECT SONAR & NAVIGATION

Deep Trekker ROVs come equipped with the latest sonar and USBL positioning systems to help users locate and identify targets and further understand their underwater position, making the package ideal for search and recovery missions, hull inspections, and low-visibility operations.

#### MODULAR TOOLS

Deep Trekker ROVs are powered by BRIDGE technology, allowing for a range of modular add-ons,

# MAKING COMPLEX UNDERWATER MISSIONS EASY

such as sonar, grabber claws, USBL, DVL, water and sediment samplers, mort pushers, and many more industry-specific tools.

#### APPLICATIONS WE SERVE

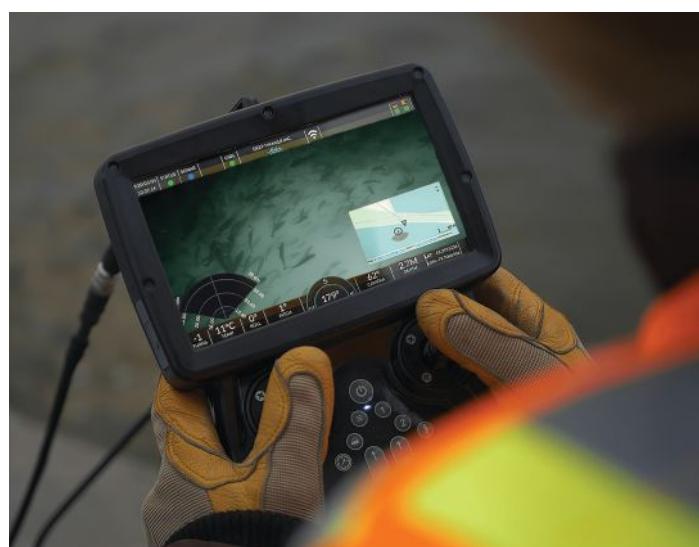
Cutting-edge underwater vehicles for critical applications in government, defense, utilities, law enforcement, search and rescue, aquaculture, commercial diving, maritime offshore, energy, ocean science, and more. Our robotics are built to help virtually any operator inspect and protect the world's submerged assets.

#### FIVE STAR CUSTOMER SERVICE

Unlike other ROV manufacturers, Deep Trekker does not believe in "service hours". We are available when our customers need us, and a senior ROV team member is only an email or phone call away.

When you purchase an ROV from Deep Trekker, you buy the team, the ideas, the vision, and the support. From joining expeditions to providing spare parts at a reasonable cost, we aim to be a part of your team, and part of your journey wherever that may take us.

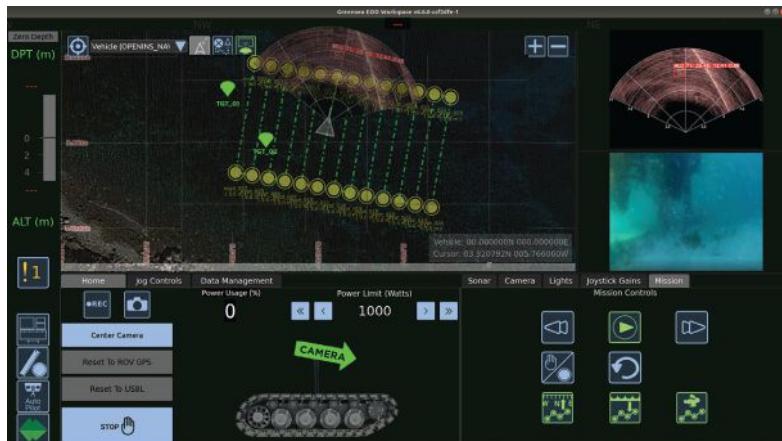
For more information, visit: [www.deptrekker.com](http://www.deptrekker.com).



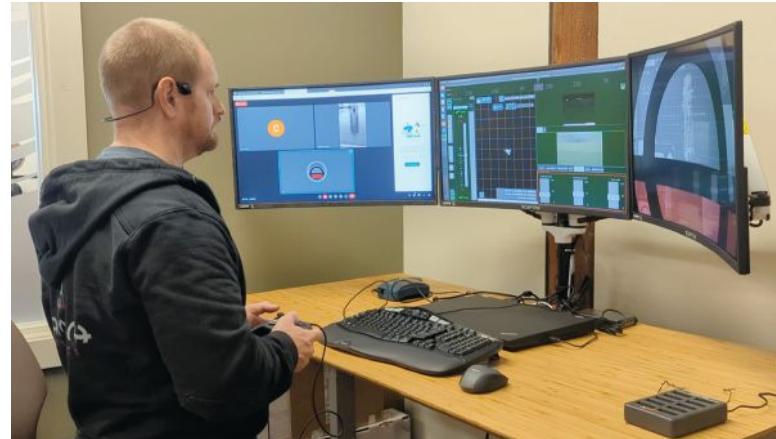
» BRIDGE technology provides high-quality ROV communication and recordings for underwater inspections. (Image credit: Deep Trekker)



# ADVANCING EXPLORATION THROUGH OPEN ARCHITECTURE MARINE ROBOTICS



» OPENSEA provides precision navigation and long-range command and control of Bayonet's AUGVs. (Image credit: Greensea)



» OPENSEA was also the development platform for Armach Robotics' EverClean hull cleaning service. (Image credit: Greensea)

Marine robotics technology specialist Greensea Systems Inc. is the leading provider of software that enables and advances underwater robotic systems and vehicles.

Greensea through their commercially available open architecture software platform OPENSEA™ supports rapid development and deployment for vehicle OEMs to meet their emerging needs for advanced capabilities.

OPENSEA, was designed and developed by Greensea's engineers, a highly specialized team with a background in robotics and electrical systems. OPENSEA offers an open architecture software platform with modular framework to facilitate the integration of robotic systems, providing the end user with a solution to deliver precision and accuracy to ROVs, AUVs, and other marine robotics/offshore vehicles that are operator friendly, easy to maintain, and robust.

## BROAD APPLICATIONS

The OPENSEA platform provides a comprehensive and proven technology framework for a range of applications now and in the future:

**Provides Capability:** Autonomy, navigation, control, and communication—everything needed to make your hardware ready to deploy.

**Drives Development:** The modular nature of OPENSEA speeds development time and contains costs while relying on the robustness of thousands of OPENSEA deployments.

**Supports Collaboration:** Open architecture makes the OPENSEA platform infinitely collaborative. Expand the vehicle's current capabilities or prepare for future adaptations.

**Fuels Innovation:** Quickly standup commercial-grade robotic systems while focusing on higher-level technologies that will result in differentiation and advancement.

Leading OEMs across the world have built their innovative technologies on OPENSEA, trusting in a tough, adaptable, and well-proven foundation, thereby saving considerable cost, time, and risk. To date, the platform is being used as the basis for more than 3,000 systems across the subsea, surface, manned and unmanned sectors.

## ABOVE AND BELOW THE WATERLINE

Examples of new services and emerging technologies being built by Greensea on the OPENSEA platform include:

**EverClean™,** an autonomous in-water robotic hull cleaning and surveying subscription service. OPENSEA provides the precision navigation, autonomy, and long-range command and

control to EverClean's Hull Service Robot that is needed to support in-water, proactive cleaning. By choosing OPENSEA as its development platform, the EverClean service was able to speed development of this novel solution by building with proven and tested tools.

As well as the full range of Bayonet vehicles. The Bayonet range of autonomous underwater ground vehicles (AUGVs) are deployable from land or water, independent of weather, designed to transit along the ocean floor as well as on land, making them the only commercially available robotic platform in the world capable of working the surf zone, between 100 meters of seawater and all the way up the beach.

Built on the OPENSEA platform, the crawlers offer precision navigation, payload integration, autonomy, and over-the-horizon command and control, and cover a wide range of possible payloads and applications, including environmental, oceanographic, hydrographic, benthic and industry specific sensors to accommodate numerous commercial and military applications.

For more information, visit: [www.greensea.com](http://www.greensea.com).

ON&T

2023

# AUTONOMOUS UNDERWATER VEHICLES: AUVs



ENVIRONMENTAL



DEFENSE



OFFSHORE OIL & GAS



SCIENCE



SEABED MINING



OCEAN RENEWABLES



WEBSITE

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**3D AT DEPTH**

[HTTPS://3DATDEPTH.COM](https://3datdepth.com)  
Sales | USASales@3datdepth.com

**CUVIER DEEP**

3D at Depth's containerized, fully integrated ROV Subsea Vehicle Inspection and Survey Solution designed to optimize mobilizations by transforming an open deck vessel to a survey and inspection platform in less than 18 hours. Deepwater assets and Offshore wind operators, owners and Energy providers can now reduce expenditures and risks while lowering offshore man-hours, decreasing carbon footprint without sacrificing quality by providing measurable and enhanced information.



OBS | SUR | A&T

**ADVANCED NAVIGATION**

[WWW.ADVANCEDNAVIGATION.COM](http://www.advancednavigation.com)  
Robbie | marketing@advancednavigation.com

**HYDRUS | MICRO-AUV**

Hydrus takes the drone revolution underwater, with the most advanced navigation and communication systems of any subsea vehicle. It contains a DVL, USBL, INS, acoustic and optical modem, all tightly integrated. This enables highly reliable, fully autonomous underwater missions at your fingertips. It also provides obstacle detection and collision avoidance. (Customizable)



OBS | SUR | INS | VC&L | A&T

**ANDURIL**

[WWW.ANDURIL.COM](http://www.anduril.com) | contact@anduril.com

**DIVE-LD**

The DIVE-LD is tailor made for littoral and deep-water survey, inspection & ISR. It allows for rapid configurations to meet mission-specific needs, applicable to a wide range of defense and commercial mission sets. (Customizable)



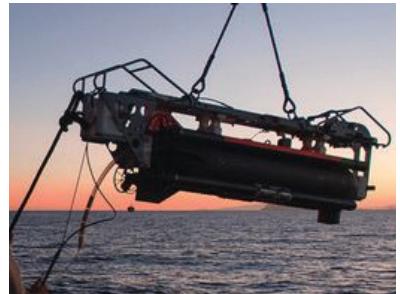
OBS | SUR

**ATLAS ELEKTRONIK**

[WWW.UK.ATLAS-ELEKTRONIK.COM](http://www.uk.atlas-elektronik.com) | info@atlas-elektronik.com

**SEACAT**

SeaCat is a hybrid AUV/ROV System with a FOC Link of 1,000 m. It can be supplemented by a multitude of sensors, located in a flooded bow section. The SwapHead is exchangeable in the field within minutes and allows a wide range of high demanding missions that otherwise would require different types of vehicles.

**SEAFOX®**

This fiber-optic guided, one shot mine disposal vehicle is used for semi-autonomous disposal of naval mines and other ordnance found at sea. It is able to automatically relocate previously acquired positions of underwater objects within minutes with the integrated homing sonar. After relocating, these objects can be identified using the onboard CCTV camera and destroyed by the use of a built-in, large caliber shaped charge. The one-way concept significantly reduces the disposal time and extends the operational envelope.



## BAE SYSTEMS

[WWW.BAESYSTEMS.COM/EN-US/HOME](http://WWW.BAESYSTEMS.COM/EN-US/HOME)

Paco Santana | [riptide@baesystems.com](mailto:riptide@baesystems.com)



### MICRO-UUV

BAE Systems' Riptide family of autonomous undersea vehicles provide a sustainable and scalable platform to advance technology development and undersea operations. Our mission agnostic and modular system design enables easy modification, while multiple energy source options allow for maximum flexibility for endurance, safety, shipping, and mission optimization. (Customizable)



OBS | SUR | VC&L | A&T | NDT

## CELLULA ROBOTICS LTD.

[WWW.CELLULA.COM](http://WWW.CELLULA.COM) | [info@cellula.com](mailto:info@cellula.com)



### IMOTUS-1

The Imotus Hovering Autonomous Underwater Vehicle (HAUV) is a comprehensive vehicle for performing inspections in complex confined spaces or resident missions in open water. Imotus is built on a modular core platform, using ROS over Ethernet to communicate between the navigation sensors, main computer and payload modules. Proprietary Simultaneous Localization and Mapping (SLAM) algorithms have been developed to enable navigation, station keeping, route following and autonomous operation in a variety of confined space environments. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK CD

## BEDROCK OCEAN

[WWW.BEDROCKOCEAN.COM](http://WWW.BEDROCKOCEAN.COM)

info@bedrockocean.com



### BEDROCK OCEAN AUV

Bedrock has engineered a new generation of portable, autonomous underwater vehicles (AUVs), allowing us to acquire seafloor data more efficiently than traditional ship or surface-based methods. Our portable AUVs support missions in water depths less than 300 m and/or 90 km from shore. At a speed of 2–3 knots, our AUVs have a low chance of animal or environmental damage as they're transiting.



SUR | OBS

## BOSTON ENGINEERING

[WWW.BOSTON-ENGINEERING.COM](http://WWW.BOSTON-ENGINEERING.COM)

Alex Wallace | [info@boston-engineering.com](mailto:info@boston-engineering.com)



### BIOSWIMMER UUV

The BIOSwimmer UUV applies the dynamics of biological fish to advance underwater search, inspection, and to operate in constricted areas inaccessible by other vehicles. The BIOSwimmer addresses maritime capability gaps in littoral waters by increasing data collection in confined areas and using multi-payload support to perform a breadth of missions. (Customizable)



SUR | A&T

## TASKS

### OBS OBSERVATION

### SUR SURVEY

### INS INSPECTION

### CON CONSTRUCTION

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### WT WORK TOOLS



### IMOTUS-S

Imotus-S is an open water hovering AUV for multi-influence marine vessel signature measurement. Operating as a fleet, the Imotus-S AUVs provide simultaneous measurements for acoustic and magnetic signatures without leaving station. Imotus-S is built on a modular core platform, using ROS over Ethernet to communicate between the navigation sensors, main computer and payload modules. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK CD



### SOLUS-LR AUV

The Solus-LR AUV is a long range, hydrogen fuel-cell powered autonomous underwater vehicle, capable of port to port missions and 2,000 km ranges. Its suction anchor and payload capacity enables applications including surface and subsurface surveillance (acoustic or magnetic), traditional geophysical surveys, and search and survey. (Customizable)



OBS | SUR | A&T

**CELLULA ROBOTICS LTD.**

WWW.CELLULA.COM | info@cellula.com

**SOLUS-MR**

Solus-MR AUV is a standard and reliable workhorse AUV for those requiring multi-day deployments. A highly customizable platform, Solus-MR can be configured with different payloads as missions demand to maximize your operations. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK  
CD

**SOLUS-XR**

Solus-XR is Cellula's next generation, fuel cell powered extra-large uncrewed underwater vehicle (XLUUV) platform, designed for port to port, lightly supervised surveillance missions over long ranges. Solus-XR is designed to be deployed solo or in fleets to provide a persistent at-sea capability with inter-vehicle communications and adaptive missions. Solus-XR is built using an ultra-reliable and cost effective commercial AUV survey core architecture, with the ability to carry defense or commercial payloads in its large removable payload modules. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK  
CD

**DEEPINFAR**

WWW.DEEPINFAR.COM/EN

Sales | info@deepinfar.com

**ORANGESHARK**

The Orange Shark AUV series are medium/small underwater unmanned autonomous vehicle developed by Tianjin Deepinfar Ocean Technology Co., Ltd. The product is highly modular, highly intelligent and highly customized. It has a compact structure, strong carrying capacity, excellent hydrodynamic performance, high energy efficiency and wide range of application. Equipped with special cloth recycling system, it is easy to use, safe and reliable to launch and retrieve. Easy to get started; application of "DVL+INS (optical fiber/laser)+ GPS/BD" combination scheme to realize autonomous navigation of equipment. Different precision levels are customized according to the application scenario. (Customizable)



SUR | VC&L | A&T

**ECOSUB ROBOTICS LTD.**

WWW.ECOSUB.UK | Sales | sales@ecosub.uk

**ECOSUBμ5 - 500 M RATED MICRO-AUV**

Our ecoSUBμ (Milli) vehicles are available as either 500 m rated or 2,500 m rated AUVs. They feature more space for payload and offer more power than our Micro class of AUV. (Customizable)



SUR | VC&L | A&T

**ECOSUBM5 - 500 M RATED SMALL-AUV**

Our ecoSUBm (Milli) vehicles are available as either 500 m rated or 2,500 m rated AUVs. They feature more space for payload and offer more power than our Micro class of AUV. (Customizable)



SUR | VC&L | A&T

**ECOSUB25 - 2,500 M RATED SMALL-AUV**

Our ecoSUBm (Milli) vehicles are available as either 500 m rated or 2,500 m rated AUVs. They feature more space for payload and offer more power than our Micro class of AUV. (Customizable)



SUR | VC&L | A&T

## EDGELAB SRL

WWW.EDGE LAB.EU | Lavinio Gualdesi | edgelab@edgelab.eu



### AMOGH

Amogh is a third generation AUV, developed in collaboration with Larsen & Toubro, Mumbai, India and Edgelab. Amogh is designed to comply with the International Hydrographic Organization standards for hydrographic surveys and IMO regulations for navigation safety. The containerized design with integrated LARS-Launch & Recovery System, and the maintenance support system is suitable for ease of implementation and installation. Amogh is equipped with the latest state-of-the-art sensors, payloads, propulsion and energy system, making it a first-class AUV for hydrographic and underwater surveillance and recognition operations.



## EDGELAB SRL

WWW.EDGE LAB.EU

Lavinio Gualdesi | edgelab@edgelab.eu



### U-TRACKER

Designed with modularity common criteria to make simple and immediate testing of new sets of sensors. Connections between various models realized with a simple, interchangeable mechanical interface system. Payload is customizable as with Webcam, CTD, Side Scan Sonar, other AUV-class sensors. High maneuverability with 2 azimuthal + 2 lateral ducted propellers.



### U-MAPPER

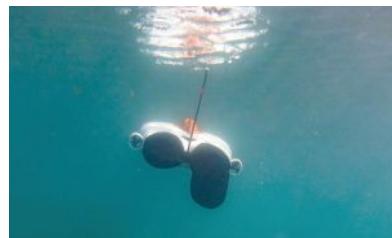
Smart, low-cost, heavy-duty, cooperative swarm navigation, modular approach for easy integration of AUV size payloads, customized, high quality maps from better image reconstruction methods and improved location accuracy of AUVs, fast and low cost horizontal surveys of large areas with multimodal sensing, monitor changes via back-to-the-site missions, hybrid usage ROV/AUV.



## EVOLOGICS

WWW.EVOLOGICS.DE

Francisco Bustamante | sales@evologics.de



### POGGY AUV

Poggie is a bionic autonomous vehicle based on the Fin-Ray® technology. The AUV is a one of a kind, novel bionic design with two propulsion thrusters and two independent flexible "tails" that give the robot unique mobility features. Its dual-tail construction is an original idea that stemmed from previous work on EvoLogics' Manta Ray AUV and its lifelike "flapping wing" propulsion system. The design was simplified and optimized—the robot lost the wings, and its tail was divided in two. Both parts of the dual-tail use independent bionic Fin-Ray® drives and allow for precise heave, pitch and roll adjustments, enabling dynamic climbs and dives, leveled gliding and bottom following.



OBS | SUR

 **EdgeTech**  
The Leader in Underwater Technology

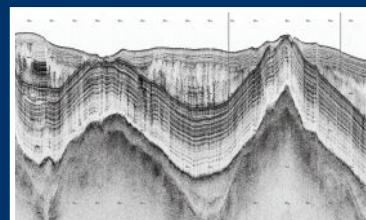
**Clearly Superior Imaging**

# SONAR SYSTEMS

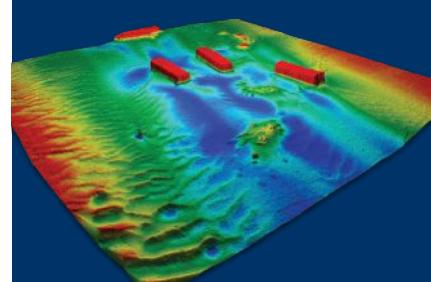
## SIDE SCAN SONARS



## SUB-BOTTOM PROFILERS



## BATHYMETRY SYSTEMS



**EdgeTech.com**

info@edgetech.com  
USA 1.508.291.0057

**TASKS**  
OBS  
SURVEY

INS  
INVESTIGATION

CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

**TOOLS**  
VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC  
& TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

**EVOLOGICS**[WWW.EVOLOGICS.DE](http://WWW.EVOLOGICS.DE)

Francisco Bustamante | sales@evologics.de

**QUADROIN AUV**

The Quadroin is a next generation AUV with low-drag bionic design. Innovative spindle-shaped flow bodies, modeled after penguins, achieve ultra-low drag coefficients in the water. The technical design choices maintain the shape and contour of an idealized penguin-like body without protruding parts to facilitate the highest drag efficiency. Driven by four rear thrusters, this AUV shows excellent hydrodynamic performance and maneuverability. It is up to 10 knots fast and highly energy efficient.



OBS | SUR

**EXAIL**[WWW.EXAIL.COM](http://WWW.EXAIL.COM)

Antony Penn | sales.robots@exail.com

**A18-M**

Deep water (3,000 m) modular and flexible mid-size AUV for high resolution 3D survey. Thanks to its accurate navigation system and its SAS sonar, this AUV gathers the highest quality data. A dedicated Launch & Recovery System is available as well as a dedicated software suite for data processing and management. Exail provides AUV Services based on A18D. (Customizable)



SUR | VC&amp;L | A&amp;T

**EXAIL**[WWW.EXAIL.COM](http://WWW.EXAIL.COM) | Antony Penn | sales.robots@exail.com**A9**

A man-portable AUV for environmental monitoring and survey as well as surveillance for Defense and Security applications. This AUV is easy to deploy and operate from shore or any small platform such as RHIBs. Dedicated data management software for civil and military (including MCM) missions are available. (Customizable)



SUR | VC&amp;L | A&amp;T

**A18D**

A man-portable AUV for environmental monitoring and survey as well as surveillance for Defense and Security applications. This AUV is easy to deploy and operate from shore or any small platform such as RHIBs. Dedicated data management software for civil and military (including MCM) missions are available. (Customizable)



SUR | VC&amp;L | A&amp;T

**GENERAL DYNAMICS MISSION SYSTEMS**[HTTPS://GDMISSIONSYSTEMS.COM](https://GDMISSIONSYSTEMS.COM) | Jonathan Lesser | Jonathan.Lesser@gd-ms.com**BLUEFIN®-9**

The General Dynamics Mission Systems Bluefin®-9 AUV provides unmatched high-resolution data, leading navigation, data processing and mission turnaround time in a two-man portable UUV. Featuring a full carbon fiber body, a carefully selected and smartly integrated suite of sensors, latest generation communications and navigational components, and new onboard processing capabilities, the Bluefin-9 is the professional's tool to KNOW WHAT'S BELOW.



SUR | VC&amp;L

**BLUEFIN®-12**

Advanced, Mission-Ready and Modular. The Bluefin®-12 is a lightweight medium-class UUV designed to deliver mission critical data and complete high-consequence and changing missions. Built with robust core capabilities, increased modularity, embedded intelligence, data processing, and extended operational range, the Bluefin-12 is ready for today's mission and prepared for tomorrow's threats. (Customizable)



OBS | SUR | VC&amp;L

## GENERAL DYNAMICS MISSION SYSTEMS

HTTPS://GDMISSIONSYSTEMS.COM  
Jonathan Lesser | Jonathan.Lesser@gd-ms.com



### BLUEFIN®-21

The Bluefin®-21 is a highly modular AUV able to carry multiple sensors and payloads at once. It boasts a high energy capacity that enables extended operations even at the greatest depths. The Bluefin-21 has immense capability but is also flexible enough to operate from various ships of opportunity worldwide. (Customizable)



SUR | VC&L

## GRAAL TECH

WWW.GRAALTECH.COM



### X-300 AUV

X-300 is a torpedo-shaped AUV capable of executing a wide variety of missions in the fields of O&G, Defense & Security, Oceanography and Environmental Monitoring. It is made up of a pair of carbon fiber cylinders connected to two terminating wet sections where steering and propelling thrusters are located, together with a bladder enabling variations of the vehicle buoyancy. (Customizable)



OBS | SUR



### X-300 EXPLORER

X-300 Explorer is a customization of X-300 AUV specifically designed for underwater inspection tasks and search operations of objects on the seabed. The short configuration makes the vehicle even more maneuverable and easier to be deployed and recovered. The available optic fiber tether provides real-time images from the on-board sensors and allows the user to take control of the AUV for maneuvering it like an ROV, whenever a closer look to a detail of interest is required. (Customizable)



OBS | SUR

## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

### INS

INSPECTION

### CON

CONSTRUCTION

### INT

INTERVENTION

### B&T

BURIAL &

TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS

# Two New ROS Innovations

## One Brighter **SEASTAR™**



- LED array produces 10K+ Lumens
- All components field serviceable using standard hand tools
- 120VAC or 24VDC full range, flicker free dimming
- Depth rated to 6000 meters

## One Smarter **accu-positioner™**

- Highly reliable design
- Controlled with COTS controllers, devices and ROS GUI
- High accuracy feedback / servo mode: +/- .1 degree
- Zero backlash
- Lightweight and compact
- Depth rated to 6000 meters



*For More Information and Technical Specifications  
Contact: sales@rosys.com or Visit: www.rosys.com*



Headquarters - San Diego, CA USA  
Phone: (858) 565-8500  
Email: sales@rosys.com  
[www.rosys.com](http://www.rosys.com)

**HUNTINGTON INGALLS INDUSTRIES**[HTTPS://HII.COM](https://hii.com) | Sales | [uxs.customerservice@hii-tsd.com](mailto:uxs.customerservice@hii-tsd.com)**REMUS 100**

The REMUS 100 is one of the most prolific small class AUVs with over 400 sold worldwide. This two-man portable, low logistics AUV is outfitted with various sensors and payloads to collect data and imagery in the ocean. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**REMUS 300**

The new REMUS 300 is a small class, modular AUV that provides maximum payload flexibility while remaining two-man portable. This 300 meter depth rated, open architecture AUV offers field-swappable energy options allowing up to 29 hour mission duration. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**REMUS 620**

The REMUS 620 is the longest reaching UUV in its class. With a battery life of up to 110 hours and a range of 275 nautical miles, it delivers unmatched multi-day endurance, range and stealth. Its modular, open architecture design and seamless payload integration, allow you to easily shift between any mission, above or below the surface. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**HUNTINGTON INGALLS INDUSTRIES**[HTTPS://HII.COM](https://hii.com)Sales | [uxs.customerservice@hii-tsd.com](mailto:uxs.customerservice@hii-tsd.com)**REMUS 6000**

The New Generation REMUS 6000 AUV boasts the same proven software and electronic subsystems found in our highly successful REMUS 100 AUV, with a depth rating, endurance and payload that allows for autonomous operations in up to 6000 meters of water. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**HYDROMEA**[WWW.HYDROMEA.COM](http://www.hydromea.com)Sales | [sales@hydromea.com](mailto:sales@hydromea.com)**VERTEX**

The Hydromea VERTEX AUV System is a fleet of small, portable and highly integrated autonomous underwater vehicles for water quality measurements, specifically designed to operate in groups of 10 or more vehicles. (Customizable)

**INDEPENDENT ROBOTICS**[WWW.INDEPENDENTROBOTICS.COM](http://www.independentrobotics.com)

info@independentrobotics.com

**AQUA2**

The Aqua2 is an amphibious hexapod robot capable of propelling itself on land or through the water. The use of six independently controlled thrusting surfaces makes the unit very maneuverable and produces minimal disturbance to the surrounding environment. The Aqua2 is programmable and configurable, can be deployed for tethered or untethered use, and is an ideal platform for submersible robotics projects, environmental monitoring, and propulsion research. (Customizable)



## INTERNATIONAL SUBMARINE ENGINEERING LTD. (ISE)

WWW.ISE.BC.CA | Sales | info@ise.bc.ca



### ISE EXPLORER AUV

The ISE EXPLORER AUV collects IHO compliant data at a rate of 750 to 1,100 km per week of ship time with all sensors operating and is the most modular and maneuverable AUV in the world today. The modular design of the EXPLORER enables it to carry multiple payloads in its spacious, swappable, and customizable payload section. The Explorer is available in 3,000 m, 6,000 m and other custom depth ratings. (Customizable)



SUR | VC&L | A&T | OBS | INS



### THESEUS AUV

ISE commenced development of the Theseus AUV, another in a long line of advanced robotic systems, under contract with the Canadian Department of National Defence as part of the joint US-Canada Spinnaker project. The requirement driving the development of Theseus was the laying of long lengths of fiber-optic cable under the Arctic ice pack. The project was successfully completed with two deployments to the Arctic with the second culminating in the laying of several 220 km cables in 600 meter water depths under a 2.5 meter thick ice pack, establishing an AUV endurance record of over 60 hours—all under ice. (Customizable)



SUR | OBS | INS

## IQUA ROBOTICS

WWW.IQUAROBOTICS.COM

Joseta Roca | joseta.roca@iquarobotics.com



### GIRONA 500 AUV

The Girona 500 is a reconfigurable autonomous underwater vehicle (AUV) designed for a maximum operating depth of up to 500 m. The vehicle is composed of an aluminum frame which supports three torpedo-shaped hulls of 0.3 m in diameter and 1.5 m in length as well as other elements like the thrusters. This design offers a good hydrodynamic performance and a large space for housing the equipments while maintaining a compact size which allows to operate the vehicle from small boats. The most remarkable characteristic of the Girona 500 is its capacity to reconfigure for different tasks. (Customizable)



OBS | SUR | VC&L | A&T

## IQUA ROBOTICS

WWW.IQUAROBOTICS.COM

Joseta Roca | joseta.roca@iquarobotics.com



### SPARUS II AUV

SPARUS II AUV is a lightweight hovering vehicle with mission-specific payload area and efficient hydrodynamics for long autonomy in shallow water (200 meters). It combines torpedo-shape performance with hovering capability. It is easy to deploy and to operate. The payload area can be customized by the end user and it uses an open software architecture, based on ROS, for mission programming. Its flexibility, easy operation and openness makes the SPARUS II AUV a multipurpose platform that can adapt to industrial, scientific and academic applications. (Customizable)



OBS | SUR | VC&L | A&T

## ISRAEL AEROSPACE INDUSTRIES (IAI)

WWW.IAI.CO.IL

iai-communications@iai.co.il



### BLUEWHALE

BlueWhale™ can detect and track targets, both above and below surface, and perform onboard sensor data processing. Actionable intelligence is relayed in real-time to the command and control over a dedicated broadband-secured satellite channel.



SUR | VC&L | A&T

## JAIA ROBOTICS

WWW.JAIA.TECH

ian@jaia.tech



### JAIABOT

JaiaBots offer unprecedented cost savings in data collection for Environmental Monitoring, Renewables, Aquaculture, Defense, and Academia. Acquisition cost, portability, modularity, and open-source implementation provide scalability and deployment by a single user from the shore. Operations independently validated in coastal, estuarine, and high surf conditions. (Customizable)



OBS | SUR | A&T

## TASKS

**SUR**

OBSERVATION

**INS**

INSPECTION

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INTERVENTION

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**NDT**

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**A&T**

ACOUSTIC & TRACKING

**CD**

CLEANING DEVICES

**VSK**

VEHICLE STATION KEEPING

**WT**

WORK TOOLS

## KONGSBERG MARITIME

WWW.KM.KONGSBERG.COM | Sales | km.sales@kongsberg.com

**EELUME**

Eelume underwater Intervention vehicles are basically self-propelled robotic arms whose slender and flexible body can transit over long distances and carry out light inspection, maintenance and repair jobs in confined spaces not accessible by conventional underwater vehicles. It will be equipped with several types of sensors and tools needed to fulfil its mission. (Customizable)

**HUGIN**

HUGIN is the most commercially successful AUV in the world, having completed over 600,000 line kilometers of paid survey. Proven by operations in harsh operations. Proven by operations in harsh open ocean conditions from Africa to South America HUGIN is the most robust AUV platform providing IHO standard data quality. (Customizable)

**HUGIN ENDURANCE**

HUGIN Endurance can be configured with a range of sensors focused on mission capabilities and situational awareness. This includes the proven hydro-acoustic instruments for mapping and inspection purposes, such as the KONGSBERG HISAS family of synthetic aperture sonars and the EM® family of multibeams. Both underwater and surface awareness sensors are used for autonomous decision making. (Customizable)

**HUGIN SUPERIOR**

The HUGIN Superior AUV System is the most capable commercially available AUV. It offers the best data quality and coverage coupled with the most accurate navigation and positioning solution there is. Packaged as a complete system, HUGIN Superior carries more sensors than ever before over greater distances enhancing productivity and cost effectiveness. HUGIN Superior is simply the best AUV you can get. (Customizable)



## L3HARRIS

WWW.L3HARRIS.COM

Jim Kirk | IVER.sales@L3Harris.com

**IVER3**

Iver3 is the first commercially developed family of low-cost AUVs. Iver3 is single man-portable and is ideal for coastal applications such as sensor development, general survey work, sub-surface security, research and environmental monitoring. Iver3 benefits from 15 years of experience in building reliable systems with well over 300 AUVs shipped. (Customizable)



SUR | VC&amp;L | A&amp;T | NDT

**IVER3 EP**

Iver3 EP open system AUVs incorporate all standard Iver3 features along with options for added forward payload sections and an intuitive API for remote helm applications. Iver3 EP is an open system where the users can install their hardware and make software extensions to the vehicle without a custom design. (Customizable)



SUR | VC&amp;L | A&amp;T | NDT

**TASKS****OBS**

OBSERVATION

**SUR**

SURVEY

**INS**

INSPECTION

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CONSTRUCTION

**INT**

INTERVENTION

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BURIAL &amp;

TRENCHING

**TOOLS****VC&L**

VIDEO CAMERA &amp; LIGHTING

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NON-

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**CD**

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**WT**

WORK TOOLS



# A NEXT-GENERATION USBL SOLUTION

» Subsonus is a next-generation USBL/INS that provides high accuracy position, velocity and heading at depths of up to 1,000 m. (Image credit: Advanced Navigation)



Finding something and keeping track of it underwater is a challenge. This is because the density of water is largely impenetrable to radio and light waves and severely restricts wireless communications. A remotely operated vehicle (ROV) may be able to illuminate the area around it and have cameras that stream video via tether to a pilot aboard a surface vessel. However, its position and orientation cannot be confirmed.

To solve this, companies rely on acoustic positioning—the method of using sound as a means of wireless underwater communications. Underwater acoustic positioning systems utilize a technique called ultra-short baseline (USBL), which uses acoustics (sound waves) to measure the range and direction ("bearing") between a vessel and a tracked object, such as an ROV or autonomous underwater vehicle (AUV).

Existing USBL configurations typically fall into two categories: the classic and the inverted. Both types have the USBL transducer mounted at one physical location, either near the water surface (usually attached to a surface vessel) or to the tracked object(s).

## THE SUBSONUS SOLUTION

Taking underwater acoustic positioning to new levels, Advanced Navigation has developed its next-generation USBL Subsonus, featuring a third, unique USBL configuration option called "USBL-squared" (USBL<sup>2</sup>). The primary difference to other USBL configurations is having a transducer on both surface vessel and tracked object.

The Subsonus transducer contains a high specification inertial navigation system (INS) alongside its hydrophone array and acoustic sounder. These elements are pre-calibrated during manufacturing, reducing in-field calibration time for operators. The INS provides roll, pitch, magnetic and gyroscopic heading, heave and acceleration data of the unit, allowing high accuracy dead-reckoning

capability in full six-degrees of freedom (6DoF). Data from the inertial sensors is fused and processed using AI-enhanced algorithm technology. The hydrophone array is also used to measure the speed of sound through water at the transducer head.

## PRECISE ACOUSTIC SIGNALING

The acoustic signals in the Subsonus USBL system are encoded with data and contain multipath rejection filters inherent to the acoustic signaling. This allows information to be shared between the transducers, rather than a simple ping-response-fix scenario. To initiate the USBL<sup>2</sup> system, the Subsonus on the surface vessel will emit an acoustic signal that the remote Subsonus will respond to. The surface vessel Subsonus will resolve the range and bearing of the remote unit and then acoustically send the absolute position and heading of the remote Subsonus to that transducer. Now, the remote Subsonus knows where it is in the world and in which direction it is headed. Additionally, the magnetic and gyroscopic heading sensors of the remote Subsonus are fused into the acoustically derived heading.

The USBL<sup>2</sup> multi-pronged approach offers a multitude of benefits, including:

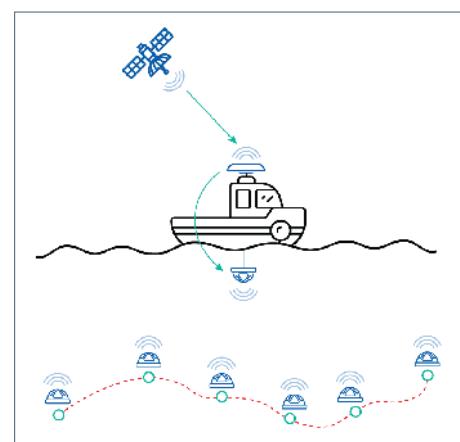
- Enhanced navigational certainty: Performing USBL calculations at both the tracked object and surface vessel significantly reduces navigational uncertainty as each Subsonus is effectively two components of a single system that can accurately resolve the orientation and position of each Subsonus unit.
- Improved speed of sound: Speed of sound through water measurement is improved by USBL<sup>2</sup> as it is measured at each Subsonus transducer and then shared between units for greater precision in range approximation.
- Immunity against interferences: Compared to other methods of obtaining accurate

underwater heading, such as through adding a fiber-optic gyroscope (FOG) to the navigation system, USBL<sup>2</sup> is immune to magnetic interference and has higher tolerances to environmental noise than traditional USBL. USBL<sup>2</sup> is also unaffected by seLat degradation caused by operating at high latitudes.

- Adaptability among different angles of communication: The high sensitivity and fine granularity of angular measurement from USBL<sup>2</sup> architecture helps overcome difficulties in precise positioning when dealing with acute slant range, such as in shallow water conditions, and when attached to more dynamic vessels.
- Scalability: USBL<sup>2</sup> is not limited in the number of remote Subsonus units, providing a highly scalable solution. This means that a single surface vessel Subsonus can manage a virtually limitless number of remote Subsonus transducers.

For more information, visit [www.advancednavigation.com](http://www.advancednavigation.com).

» Image depicting Subsonus USBL Squared operation, where the surface vessel Subsonus transducer is connected to a satellite compass for GNSS derived absolute position and heading input. (Image credit: Advanced Navigation)



**L3HARRIS**

[WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM) | Jim Kirk | IVER.sales@L3Harris.com

**IVER4 580**

The Iver4 580 offers users a 200-meter depth survey system featuring hot-swappable battery sections that can be changed in the field without any special tools. The Iver4 580 offers users a 200-meter depth survey system featuring hot-swappable battery sections that can be changed in the field without any special tools. (Customizable)



SUR | VC&L | A&T | NDT

**IVER4 900**

The Iver4 900 UUV offers users a 300-meter workhorse system featuring extended duration capability of 20+ hour run times for long ingress/egress missions. The Iver4 900 carries the highest performing navigation and imaging sensors available, while using swappable battery chemistries that meet flexible mission needs. (Customizable)



SUR | VC&L | A&T | NDT

**LOCKHEED MARTIN**

[WWW.LOCKHEEDMARTIN.COM](http://WWW.LOCKHEEDMARTIN.COM)

**MARLIN**

The Lockheed Martin Marlin® AUV offers a range of civilian and military customers a quick and safe way to conduct subsea surveys and inspections. Lockheed Martin is advancing subsea inspections for the oil and gas industry by using Marlin to provide faster, safer, economical, and more efficient inspections compared to using divers and tethered remotely operated vehicles. Equipped with sensors and robust autonomy, Marlin conducts structural surveys, pipeline inspections, bottom debris surveys, and subsea facility inspections. (Customizable)



SUR | VC&L | A&T

**NAUTICUS ROBOTICS**

[HTTPS://NAUTICUSROBOTICS.COM](https://NAUTICUSROBOTICS.COM)

**AQUANAUT**

Imagine a robot that can manage aquaculture projects, repair oil pipelines and scan seabeds—all without risking a single human life. Our flagship robot, Aquanaut, meets these challenges and more while running solely on electric power. It's the first subsea robot that's just as versatile as it is sustainable. With Aquanaut, you don't have to choose between an AUV and an ROV—you can have both. Start with autonomous seabed scanning, then seamlessly move to remote operation and object manipulation on the same exact robot. (Customizable)



SUR | VC&L | A&T

**OCEAN AERO**

[WWW.OCEANAERO.COM](http://WWW.OCEANAERO.COM)

info@oceanaero.us

**TRITON**

Triton is the world's only wind and solar powered, intelligent autonomous vehicle that both sails and submerges for unparalleled data collection and intelligence gathering in some of the hardest-to-reach-places on the planet. Intelligently designed with advanced materials, Triton can be configured to carry an almost infinite variety of payloads to complete any mission. (Customizable)



OBS | A&T | NDT

**OCEANEERING INTERNATIONAL, INC.**

[WWW.OCEANEERING.COM](http://WWW.OCEANEERING.COM)

**OCEAN SURVEYOR**

Standard Equipment: C-Nav L-Band DGPS | Inertial Navigation | Simrad HiPAP USBL | RDI Navigator Doppler Velocity Log | Kalman Filter | Digiquartz Depth Unit | SBE 49 FastCAT CTD Sensor | Multibeam Echosounder: Kongsberg Simrad EM 2040 | EdgeTech/Side Scan Sonar: 120/410 kHz Chirp AUV | Edgetech/Sub-bottom Profiler: 2–16 kHz Chirp | Black and White High Resolution Digital Camera | 2G Robotics/ULS-500 Pro Laser Line Scanner | Magnetometer Battery: Lithium Ion. (Customizable)



OBS | SUR | A&T | NDT

## OCEANSCAN-MST LDA

WWW.OCEANSCAN-MST.COM

info@oceanscan-mst.com



### LAUV

The LAUV is a rugged, cost-effective, lightweight AUV designed to be simple to deploy, operate, and recover by one person. The open-source software, makes easy the integration of new payload and algorithms. The LAUV is used worldwide by Navies and R&D institutions. (Customizable)



OBS | SUR | VC&L | A&T

## QINETIQ NORTH AMERICA

WWW.QINETIQ-NA.COM

Knut Streitlien | knut.streitlien@qinetiq-na.com



### SEA SCOUT

Sea Scout™ is a general purpose UUV that can be deployed with a standard A-size sonobuoy launch container. It can have up to two optional payload sensors.



## RTSYS

WWW.RTSYS.EU

Corentin Trouard | enquiries@rtsys.fr



### COMET 300

COMET 300 is a two-man portable AUV with real-time positioning and acoustic communication system. Designed to meet the current scopes of marine research and industry, COMET 300 can be used in swarm mode, or as a standalone device up to 300 m depth with embedded sensors (SSS, CTD, TV camera, Magnetometer). (Customizable)



OBS | SUR | VC&L | A&T

## TASKS

### OBS

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& LIGHTING

### NDT

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### A&T

ACOUSTIC  
& TRACKING

### CD

CLEANING  
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### VSK

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### HIGH-DURABILITY FLEXIBLES

- Liquid containment systems
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- Emergency water distribution systems
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- Deployable solids management

Contact:

Address: 113 Street A, Picayune, MS 39466 U.S.A.

Phone: (601) 889-9050

Email: sales@AEF-Performance.com

### BUOYANCY INFLATABLES

- Underwater lifting bags
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Contact:

Address: P.O. Box 2030, North Kingstown, RI 02852 U.S.A.

Phone: (401) 884-8801

Email: sales@Subsalve.com

**RTSYS**

[WWW.RTSYS.EU](http://WWW.RTSYS.EU) | Corentin Troussard | [enquiries@rtsys.fr](mailto:enquiries@rtsys.fr)

**NEMOSENS**

NemoSens is a 300 m micro-AUV with open Linux architecture. NemoSens can embark payloads such as CTD probe, magnetometer, Side Scan Sonar. Light, portable (less than 1 m, less than 10 kg), 8 hours endurance at 4 knots, live tracking and real time communication makes NemoSens the most capable micro-AUV of the market. (Customizable)



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**SAAB SEAEDGE**

[WWW.SaabSeaeye.com](http://WWW.SaabSeaeye.com)

James Douglas | [solutions@saabseaeye.com](mailto:solutions@saabseaeye.com)

**SEAEDGE SABERTOOOTH**

The Sabertooth is a hybrid AUV/ROV capable of working in deep water either as an autonomous vehicle or via a tether. Its power, tether-free operation and 360° hovering maneuverability make the Sabertooth an ideal option for autonomous inspection or maintenance and repair tasks as well as offshore survey work. (Customizable)



OBS | SUR | VC&L | A&T | NDT

**SEABER**

[HTTPS://SEABER.FR](https://SEABER.FR) | Meliha Boucher | [meliha@maria-conseil.com](mailto:meliha@maria-conseil.com)

**YUCO-CARRIER**

YUCO-Carrier micro-AUV is the ideal tool to embed your sensors or even your autonomous sondes! YUCO-Carrier is equipped with Subconn connectors and can provide power and serial data-communication. If provided with .step files SEABER element to be integrated to fit in the YUCO underwater vehicle. With the payload YUCO-Carrier micro-AUV as an autonomy up to 10 hours. YUCO-Carrier underwater vehicle is ideally filter for coastal monitoring or lake monitoring that require to go often at site even for single person deployments. (Customizable)



SUR | A&T | NDT

**YUCO-CTD**

YUCO-CTD is the ideal tool to monitor accurately salinity and temperature in ocean, coastal environment and lakes. The C1 sensor RBR Legato, is suited on the top of the YUCO micro-AUV to ensure best measurement in flow. An optional DVL can be used in option for greater navigation accuracy in current area. (Customizable)



SUR | A&T | NDT

**YUCO-PAM**

YUCO-PAM is an innovative autonomous solution for passive acoustic monitoring. Instead of a mounted hydrophone it is a fully autonomous recorder that is embedded in the YUCO-PAM micro-AUV. YUCO-PAM micro-AUV is equipped with Porpoise recorder from RsAqua. With a selectable sampling rates up to 384 kHz and storage capacity up to 4 TB. The Porpoise recorder can be programmed separately or triggered by AUV and can synchronize its recordings with the YUCO-PAM. (Customizable)



SUR | A&T | NDT

## SEABER

[HTTPS://SEABER.FR](https://seaber.fr) | Meliha Boucher | meliha@maria-conseil.com



### YUCO-PHYSICO

YUCO-PHYSICO micro-AUV is a game changer in water-quality monitoring. It is a fully autonomous multiparameter sonde than the YUCO-PHYSICO micro-AUV is embedding. Any sensor from the sonde manufacturer proposed range can be used on YUCO-PHYSICO micro-AUV, such as, Sound Velocity, Conductivity, Dissolved Oxygen, Turbidity, pH, Chlorophyll A, Crude-oil, etc.) YUCO-PHYSICO has great maneuverability even in very narrow and shallow waters makes it ideal to monitor micro-structures. (Customizable)



SUR | A&T | NDT

## STRATEGIC ROBOTIC SYSTEMS

[WWW.SRSFUSION.COM](http://WWW.SRSFUSION.COM)

Jesse Rodocker | jesse@srsfusion.com



### FUSION-HYBRID

The FUSION is a multipurpose UUV with both AUV and ROV functionality. Complete with a full suite of sensors including side scan, forward looking multi-beam, HD video, DVL and USBL. The highly intuitive control system coupled with the compact footprint and ability to conduct tethered or untethered missions make the FUSION a versatile system. (Customizable)



OBS | SUR | VC&L | A&T | NDT



### YUCO-SCAN

The product is highly modular, highly intelligent and highly customized. It has a compact structure, strong carrying capacity, excellent hydrodynamic performance, high energy efficiency and wide range of application. Equipped with special cloth recycling system, it is easy to use, safe and reliable to launch and retrieve. Easy to get started; application of "DVL+INS (optical fiber/laser)+ GPS/BD" combination scheme to realize autonomous navigation of equipment. Different precision levels are customized according to the application scenario. (Customizable)



SUR | A&T | NDT

## SUBSEA TECH

[WWW.SUBSEA-TECH.COM](http://WWW.SUBSEA-TECH.COM)

Sales | st.sales@subsea-tech.com



### TORPEDO

The Torpedo AUV is an autonomous underwater vehicle specially designed for the internal inspections of pipelines and tunnels at distances up to 5,000 m. The vehicle is equipped with a front HD color video camera with integrated LED lighting and can be also fitted with various other sensors such as multibeam sonar (acoustic imaging) and acoustic profiler. (Customizable)



SUR

## SEATOOLS

[WWW.SEATOOLS.COM](http://WWW.SEATOOLS.COM)

Sales | sales@seatools.com



### ACTDM-INVESTIGATION AUV

On request of Alcatel-Lucent, Seatechs performed a conceptual design study on an AUV capable of accurately monitoring and recording a cable's touchdown point. The autonomous vehicle is capable of traveling down the cable and subsequently maintains station at a predefined altitude near the touchdown point. During cable laying, the vehicle maintains this position and continuously measures and records the cable touchdown point. (Customizable)



OBS | SUR | VC&L | A&T | NDT

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### GAVIA AUV

The Gavia AUV is a self-contained, low logistics, modular survey platform capable of delivering high quality data while operating from vessels of opportunity or from the shore. (Customizable)



SUR | VC&L | A&T | NDT

**TELEDYNE GAVIA**

[HTTP://WWW.TELEDYNEMARINE.COM](http://www.teledynemarine.com)  
Arnar Steingrimsson | gavia\_sales@teledyne.com

**OSPREY AUV**

The Osprey is a truly modular AUV. The Osprey has a 324 mm diameter in order to carry additional energy for operational endurance in excess of 24 hours while maintaining a 1,000 meter depth rating. Added features: efficient rim drive thruster, external data pod, science bay, obstacle avoidance and forward-looking sonar nose, customizable payloads. (Customizable)



SUR | A&T

**SEARAPTOR AUV**

The SEARAPTOR™ is a survey grade deep water autonomous underwater vehicle (AUV) designed to operate at abyssal depths. A wide range of sensors allow the SeaRaptor™ to complete several types of missions including: broad area search with side-scan sonar, hydrographic survey with multibeam and sub bottom profiler, and high resolution inspection survey with camera and acoustic sonar.

(Customizable)



SUR | A&T | NDT

**TRANSMARK SUBSEA AS**

[WWW.TRANSMARK-SUBSEA.COM](http://www.transmark-subsea.com) | Marcel Bras | marcel@transmark-subsea.com

**ARV-i**

ARV-i provides its customers with a range of operational configurations. As a resident vehicle, ARV-i will spend its time entirely underwater, for up to 12 months per deployment. The vehicle is designed to be autonomous, using prior programming and onboard intelligence to locate and observe underwater assets. When its battery is low, ARV-i will return to its proprietary docking station for wireless battery charging and transfer of data collected from the completed excursion.



OBS | SUR | VC&L | A&T | NDT

**YSI INTEGRATED SYSTEMS & SERVICES**

[WWW.YXI.COM](http://www.yxi.com) | YSI Systems | ysi.systems@xyleminc.com

**13XO ECOMAPPER AUV**

YSI introduces a unique system for collecting water quality data. The EcoMapper AUV equipped with YSI's multi-parameter water quality sensors provides researchers and scientists with a data collection platform unmatched in its flexibility and capability. The EcoMapper can measure water quality, currents, and bathymetry at a continuous interval for missions ranging from 8–10 hours. (Customizable)



OBS | SUR | A&T | NDT

# INNOVATIVE SUBSEA SOLUTIONS EVERYWHERE YOU LOOK

» Teledyne's sonars deliver high-resolution imagery and bathymetric data, such as sand waves captured by a SeaBat T50. (Image credit: Teledyne)

Teledyne Marine is a pioneer in providing cutting-edge, innovative, and reliable subsea technology solutions. From autonomous underwater vehicles (AUVs) to Gliders, sonar systems, and imaging technology, Teledyne Marine's offerings cater to a wide range of subsea applications. The company's commitment to technological advancements, innovation, and unwavering reliability sets them apart in the industry.

## GLIDER TECHNOLOGY

Teledyne Webb's Research Gliders offer unparalleled underwater exploration and data collection capabilities. Equipped with advanced sensors, including multibeam echo sounders and environmental sensors, Gliders provide critical oceanographic data for research, environmental monitoring, and marine ecosystem studies. With reliability, adaptability, and ability to operate in various oceanic conditions, Teledyne Webb Gliders are preferred for scientific research and industry applications.

A recent example of this was highlighted when Teledyne recently delivered several Teledyne Webb G3 glider systems to the esteemed Royal Netherlands Institute for Sea Research (NIOZ). Known for its multidisciplinary applied marine research and its pledge to address crucial scientific questions related to our oceans and seas, NIOZ is committed to operational excellence. The acquisition of these Teledyne Webb Slocum gliders marks a significant step forward in advancing marine research abilities.

Equipped with long endurance capabilities and the ability to transfer acoustic data, the gliders perfectly suit NIOZ's research objectives. The decision to collaborate with Teledyne Webb Research was based on their track record of delivering cutting-edge technology and expertise in the field. The gliders will play a vital role in the NOSE (North Sea CO<sub>2</sub> Absorption) project, which aims to study the absorption of carbon dioxide in the North Sea. This ambitious undertaking will provide invaluable insights into the carbon cycle and its impact on the marine ecosystem.



» The Gavia Osprey AUV with flooded payload bay offers extended endurance and greater payload capacity. (Image credit: Teledyne)

## AUV TECHNOLOGY

But it doesn't stop there! Teledyne Marine's AUVs revolutionize subsea inspection and ocean research with their advanced capabilities, state-of-the-art imaging systems, sonar arrays, and high-precision navigation capabilities. This is why NIOZ also acquired the Teledyne Gavia Osprey AUV to add to its ever-growing fleet for scientific projects, like understanding the significant impacts of climate change on the seas and oceans, such as temperature increase and acidification. The Osprey, the most recent addition to the Teledyne Gavia AUV family with a flooded payload bay, will allow NIOZ to interface and use their new in-house developed sensors.

Teledyne Gavia AUVs also provide cost-effective solutions for pipeline inspections, subsea asset monitoring, and infrastructure maintenance. With real-time data and imagery, Teledyne AUVs optimize operational efficiency, mitigate risks, and ensure reliable asset management. No matter the job, the modular Teledyne Gavia AUV systems are easily moved around in Pelican cases, making logistics effortless.

## SONAR SYSTEMS

Teledyne Marine's sonar systems are at the forefront of underwater imaging and surveying technology. With advanced multibeam and forward-looking sonars, these systems deliver high-resolution imagery and bathymetric data for precise seafloor mapping, object detection, and underwater infrastructure inspections. Teledyne Marine's sonar systems provide exceptional performance and reliability in challenging underwater environments, empowering hydrographic surveying, offshore industries, and marine research professionals.

## IMAGING SYSTEMS

Teledyne Marine's imaging systems capture detailed underwater imagery and video footage with unmatched clarity. Whether remotely operated vehicles (ROVs), towed cameras, or drop cameras, Teledyne Marine's imaging solutions offer exceptional visual data for marine applications. Equipped with advanced optics, high-resolution sensors, and innovative lighting technologies, these imaging systems ensure excellent image quality even in challenging underwater conditions. Trusted by professionals in scientific research, marine exploration, and industrial inspections, Teledyne Marine's imaging systems are reliable and feature-rich.

Whether involved in subsea inspections, marine research, hydrographic surveying, or underwater exploration, Teledyne Marine's products empower your operations and are underlined by our commitment to technological advances, innovation, and unwavering reliability.

To learn more, visit: [www.teledynemarine.com](http://www.teledynemarine.com).



» EvoLogics' new Berlin headquarters. (Image credit: EvoLogics)

EvoLogics is a leading subsea technology company established in 2000, with headquarters in Berlin, Germany, and a US sales office in Yorktown, Virginia. Combining state-of-the-art engineering with bionic concepts, EvoLogics has become a trailblazer in underwater acoustic communication, positioning networks, smart robotics, and sensor systems.

With a 23-year history in Berlin-Mitte, EvoLogics is embarking on a new chapter as it recently completed its move to a larger headquarters in the technology park of Berlin-Adlershof. The strategic 2023 relocation marks a significant milestone for EvoLogics and begins a new era of growth and innovation.

#### EXPANDING OPERATIONS

The move to larger custom-built premises reflects EvoLogics' vision to expand production, research, and development capacities for its acoustics, robotics, and sensors departments. With ample in-house production and testing facilities, the increased space will empower the company to meet the rising industry demands and take on ambitious new projects that push the boundaries of existing subsea technologies.

Throughout the transition, EvoLogics remains committed to ensuring a seamless continuation of its day-to-day operations. The company recognizes the importance of maintaining ongoing projects and collaborations, as well as preserving strong relationships with its valued partners and clients. The EvoLogics' team is working diligently to ensure minimal disruption during this period of change.

EvoLogics remains dedicated to pushing boundaries, breaking new ground, and transforming the maritime technologies landscape with their advanced solutions. Already in 2023, the company announced the new multibeam sonar option for the Sonobot 5 uncrewed surface vehicle (USV), currently on demonstration tours for partners and clients, and the acoustics department had lined up upgrades for the subsea modems range in the upcoming months.

#### USV SONAR

The new multibeam sonar, custom designed for the Sonobot 5, is based on a Norbit OEM solution, an entry-class multibeam sonar geared for survey professionals. The EvoLogics Multibeam comes with a high-grade dual GNSS and INS positioning and motion control, which is standard for all Norbit echosounders. With 256 beams at  $1.45^\circ \times 1^\circ$ , a range of

## NEW FACILITY TO SUPPORT A NEW ERA OF GROWTH AND INNOVATION

over 200 m, and a ping rate of 50 Hz, this system enables professional surveillance that complies with the IHO's S-44 standard.

The smart and highly integrated design of the Sonobot 5 enables outstanding one-man transportation and deployment, and with powerful thrusters and a full working day battery capacity, the Sonobot 5 represents the smallest and easiest-to-handle autonomous vehicle equipped with a professional multibeam sonar.

All incoming data is stored onboard the vehicle and accessible by the USV's shore-based operator throughout the mission. The system is compatible with Norbit data collection tools and all third-party software packages currently supported by the Norbit WBMS sonar family.

The EvoLogics Multibeam offers high-resolution imaging and mapping of the seafloor with faster and more detailed bathymetric surveys compared to a single beam echosounder. The choice of echosounder technology depends on the specific requirements and budget of each survey project, and EvoLogics' team of experts is readily available to advise on the most effective solution for a particular task.

For more information visit: [www.evologics.de](http://www.evologics.de) or contact [sales@evologics.com](mailto:sales@evologics.com).



» Sonobot 5 USV with EvoLogics Multibeam. (Image credit: EvoLogics)

ON&T

2023

# UNCREWED SURFACE VEHICLES: USVs



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DEFENSE



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**AQUATIC DRONES**

[HTTPS://AQUATICDRONES.EU](https://aquadron.eu)  
info@aquadron.eu

**PHOENIX 5**

The Phoenix 5 is a multi-use, robust USV, equipped with a wide range of sensors. The P5 offers a clean, safe, easy to use and cost-efficient solution for maritime maintenance in ports, inland waterways and coastal areas. Our aim is operational excellence, effective use and high reliability for our customers around the world, with fair CAPEX and OPEX. (Customizable)



OBS | SUR | VC&L | A&T

**AUTONOMOUS MARINE SYSTEMS**

[WWW.AUTOMARINESYS.COM](http://www.automarinesys.com)  
Scott Nguyen | info@automarinesys.com

**THE DATAMARAN**

Autonomous Marine Systems delivers a global platform for ocean observation using intelligent sensor networks powered by the Datamaran. Our unmanned surface vehicles autonomously collect data from above and below the surface of almost any body of water and transmit this information directly to our clients.

**AUTONAUT**

[WWW.AUTONAUTUSV.COM](http://www.autonautusv.com) | Sales | info@autonautusv.com

**AUTONAUT 3.5**

The AutoNaut 3.5 is designed for safe and simple deployment and recovery. It has a single lifting point for launch and recovery from a vessel. Alternatively, for the option of a direct path from/to a slipway, the craft has a low draft without subsea mechanism.



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**AUTONAUT 5.0M**

The AutoNaut 5.0 is designed for versatility. It has a larger carrying capacity for sensors, batteries and solar panels. The modularity of the design gives a flexible payload and for ease of transport the hull can break down into two halves.



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**CHCNAV**

[HTTPS://CHCNAV.COM](https://chcnav.com)  
marketing@chcnav.com

**APACHE3 USV**

The APACHE3 is a portable shallow-draft hull with a single-beam echo sounder for bathymetric surveys of lakes, inland rivers, and coastal areas. The master control unit provides seamless 4G communication, removing the limitations of traditional network bridge base stations and transmission distances, and making hydrographic survey easier. (Customizable)



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## CHCNAV

[HTTPS://CHCNAV.COM](https://CHCNAV.COM) | marketing@chcnav.com



### APACHE4 USV

The APACHE 4 is a USV that supports a wide variety of Acoustic Doppler Current Profiler (ADCP) systems available on the market. It offers an unmanned operation solution with a shallow draft, high navigational accuracy, and stable hovering for hydrologists when measuring water flow velocity and discharge of a current section. (Customizable)



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### APACHE6 USV

The APACHE6 USV is a fully-integrated innovative solution for 3D bathymetric survey, underwater object positioning, offshore construction, underwater archaeology, and wrecked rescue. The APACHE6 is powered with a high-performance dual propeller system ensuring a stable constant automatic cruise speed of up to 2.5 m/s (7.6 fps). The survey projects can also be completed in manual mode using the APACHE6 remote control panel over a 2 km distance. The APACHE6 multibeam USV reduces survey time, improves work efficiency, and outputs high-resolution data always to match the most demanding marine survey project requirements. (Customizable)



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## DEEP OCEAN ENGINEERING, INC.

[WWW.DEEPOCEAN.COM](http://WWW.DEEPOCEAN.COM)

Sales | sales@deepeccean.com



### PHANTOM® H-1750

The Phantom® H-1750 USV is a powerful, 1.75 m, remotely controlled, battery-powered, catamaran-style unmanned surface vehicle designed and manufactured by Deep Ocean Engineering to conduct measurements of currents, bathymetry, discharge and surveys in a variety of environments. The advanced technology of the Phantom® H-1750 USV can be equipped with GPS, depth sounder, sonar and a variety of sensors. (Customizable)



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## DEEP OCEAN ENGINEERING, INC.

[WWW.DEEPOCEAN.COM](http://WWW.DEEPOCEAN.COM)

Sales | sales@deepeccean.com



### PHANTOM® I-1650 USV

The Phantom® I-1650 USV is a powerful, 1.65 m, remotely controlled, battery-powered unmanned surface vessel designed and manufactured by Deep Ocean Engineering to conduct measurements of currents, bathymetry and discharge with ADCPs. (Customizable)



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## DOTOCEAN

[WWW.DOTOCLEAN.EU](http://WWW.DOTOCLEAN.EU)

Sales | sales@dotoclean.eu



### CALYPSO

The Unmanned Survey Platform (USP) Calypso is an inflatable, full autonomous surface vehicle that can carry a wide range of sensors for hydrographic and environmental surveys.



OBS | SUR

## EMMA TECHNOLOGIES GMBH

[WWW.EMMA-TECHNOLOGIES.COM](http://WWW.EMMA-TECHNOLOGIES.COM)

ask-emma@emma-technologies.com



### BOSS

BOSS—the first work class vehicle for environmental monitoring and inspection applications in hard-to-reach areas, difficult environments or very shallow water regions.



## TASKS

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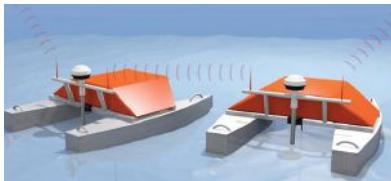
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**EMMA TECHNOLOGIES GMBH**[WWW.EMMA-TECHNOLOGIES.COM](http://WWW.EMMA-TECHNOLOGIES.COM)

ask-emma@emma-technologies.com

**HYCOPS**

HyCOPS—most advanced system for georeferenced water column sampling and imaging. True parallel survey-line piloting under harsh environmental conditions. Unique swarm capacity mode.

**EVOLOGICS GMBH**[WWW.EVOLOGICS.DE](http://WWW.EVOLOGICS.DE) | Francisco Bustamante | sales@evologics.de**SONOBOT 5 USV**

The Sonobot 5 platform offers accurate bathymetry and side-scan sonar imaging for autonomous surveys and searches in inland waters and harbors. The highly integrated design of the Sonobot enables one-man handling. The vehicle has powerful thrusters and a full working day battery capacity. Different GNSS, single-beam echosounder, multibeam sonar, side-scan sonar options cater to various survey requirements. The AI-powered object recognition allows detection of objects of interest in side-scan sonar imagery, live during the mission.

**EXAIL**[WWW.EXAIL.COM](http://WWW.EXAIL.COM) | Antony Penn | sales.robots@ecagroup.com**DRIX**

DriX has been operating with major Energy and Survey companies (operators and contractors) for over a year. DriX can conduct operations with a reduced crew. Fitted with an autopilot, a Collision Avoidance System and HSE compliant, it can operate on windfarms or within rigs 500 yards exclusion zones. Its endurance ranges from 24 hours at 14 knots (top speed), to 10 days at 4 knots. Its highly hydrodynamic shape allows DriX to conduct surveys up to sea state 5. Its Launch & Recovery System (DDS), fully automatic, allows for swift and safe deployments. (Customizable)



OBS | SUR | A&amp;T

**INSPECTOR 90**

The Inspector 90 USV is a multipurpose drone platform using hydrojets for its propulsion, able to be operated in autonomous mode, remote control or onboard steering. Its performances and its accuracy make it efficient in protection missions, recurrent operations, mine warfare activities and Rapid Environment Assessment. Its open design makes it possible to deploy a large range of payloads.

**INSPECTOR 125**

The INSPECTOR 125 is a "carrier USV" equipped with anti-roll system capable of transporting and deploying a large range of payloads formerly reserved for larger manned vessels. It is fitted with a mine and obstacle avoidance sonar (MOAS) and capable of launching and recovering the A18 AUV, the T18 towed sonar, the SEASCAN identification and K-STER neutralization robots as well as towing a minesweeping system.



## FUGRO

WWW.FUGRO.COM | www.fugro.com/contacts



### FUGRO BLUE SHADOW

Fugro Blue Shadow has been designed for safe and efficient hydrographic and geophysical survey operations for medium to large scale projects, in both nearshore and offshore environments. Its wave-piercing design and stability enables greater weather tolerance and the ability to operate in high sea states. Equipped with dual-band radar, automatic identification system (AIS) and 360° view cameras (including infrared for night operations), Fugro Blue Shadow has advanced situational awareness and incorporates both obstacle and collision avoidance within its navigation software to ensure operations are conducted to the highest safety standards.



OBS | SUR

## GRAAL TECH

WWW.GRAALTECH.COM



### MGB-300 USV

MGB-300 is the newest Graal Tech autonomous vehicle belonging to the X-300 family. It is a USV equipped with a long-range radio device and an underwater acoustic modem. When used in combination with one or more X-300 AUVs can act as a data gateway between the underwater vehicles and the control station. Like its parent X-300, MGB-300 is characterized by high maneuverability, flexible payload modularity, and open control system, making it a unique and versatile platform that can comply with many different mission needs. (Customizable)



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### FUGRO BLUE ESSENCE (12 M) AND FUGRO BLUE ECLIPSE (18 M)

Fugro's Blue Essence and Blue Eclipse USVs come with a Blue Volta electrical remotely operated vehicle (eROV) and launch-and-recovery system. This is a unique solution for efficient inspection requiring no offshore crew.



OBS | SUR

## GPA SEABOTS

WWW.GPASEABOTS.COM

Jaume Viñola | j.vinola@gpaseabots.com



### SB 100 PRO

The SB 100 PRO is an unmanned surface vehicle (USV) designed to operate in environments such as harbors, marinas, reservoirs, mining lakes, rivers, coastal strip, ponds... in short, calm waters. Its special design makes it the most versatile USV on the market, capable of integrating almost any type of marine instrumentation thanks to its customized Blackbox, Ground Station and tripod, modern remote controller, frontal camera with live image among others. (Customizable)



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An advertisement for ecosub robotics featuring three yellow and black ecosub USVs. The text highlights features like satellite communications, edge computing, and a simple mission planner. It also lists applications in science, commercial, and defence. The website www.ecosub.uk and the 'Planet Ocean' logo are at the bottom.

**H2O ROBOTICS**[WWW.H2O-ROBOTICS.COM](http://WWW.H2O-ROBOTICS.COM)

Sales | marin@h2o-robotics.com

**H2OMNI-X**

H2Omni-X is autonomous unmanned surface platform specialized for seafloor and surface surveying, mapping and inspection. Due to its modular and clever design it can easily be operated by a single person. This means logistics and deployment are simpler than with any other similar vehicle! By using different sensors on board or configuration options, the platform can be modified for a new mission in under an hour!



SUR | INS

**HI-TARGET**[HTTPS://EN.HI-TARGET.COM.CN](https://EN.HI-TARGET.COM.CN)

Sales | sales@hi-target.com.cn

**iBOAT BS3**

iBoat BS3 USV is a swift and intelligent surveying unmanned surface vehicle with unmatched usability and professional hull design. It is equipped with a high-performance single beam echo sounder, high-precision GNSS positioning and on-board data control and acquisition software. The excellent sounding module offers a measurement range from 0.15 m to 300 m, able to adapt to different working environments. Besides, ADCP and side-scan sonar can also be added for versatile applications. (Customizable)



OBS | SUR

**HYDRONALIX**[WWW.HYDRONALIX.COM](http://WWW.HYDRONALIX.COM)

Sales | info@hydronalix.com

**AMB**

Optional X-Band Radar. Advanced Small Surface Robotic Systems. Fuel injected direct drive 2 KW engine with 100 V generator starter. Optional high power gimbal stabilized Electro-Optical and Infrared Cameras with auto-tracking software. Optional side scan and downward imaging sonar.



SUR | INS

**HYDRONALIX**[WWW.HYDRONALIX.COM](http://WWW.HYDRONALIX.COM) | Sales | info@hydronalix.com**AMY**

Optional X-Band Radar. Fuel injected Hybrid Engine power supply 4 KW. High band width INMARSAT satellite communications. Optional side scan and downward imaging sonar. High efficiency planing hull. Bright LED Navigation lights.



SUR | INS

**EMILY**

Since 2010 Hydronalix has partnered with the Los Angeles County Fire Department Lifeguard Division to develop EMILY (EMergency Integrated Lifesaving LanYard). Over the years Hydronalix has worked closely with fire departments in the continued development of EMILY systems. These include: Austin County Fire Department; Fire Department New York City; Denver Fire Department; Norfolk Fire Department, Houston Fire Department and hundreds of other fire departments across the US and in 23 other countries.



SUR | INS

**NIX**

M-Hull configuration provides stability at high speeds while generating virtually no wake or noise. Fuel injected Hybrid Engine power supply, available in 3 KW. Optional high power gimbal stabilized Electro-Optical and Infrared Cameras with auto-tracking software. Optional side scan and downward imaging sonar.



SUR | INS

**HYDRONALIX**

## IN NATURE ROBOTICS LTD.

WWW.INNATUREROBOTICS.COM

Murray Lowery-Simpson

murray@innaturerobotics.com



### AMOS

AMOS (Aquatic Mini Observation System) is an autonomous, solar-powered airboat used for water quality monitoring and surveying applications. It is intended for long-term deployments in inland or coastal regions, potentially in shallow water with significant amounts of vegetation. (Customizable)



OBS | SUR | VC&L | NDT | A&T

## INTERNATIONAL SUBMARINE ENGINEERING LTD (ISE)

WWW.ISE.BC.CA | info@ise.bc.ca



### DORADO AND DOLPHIN USV

The Dorado USV, and its smaller predecessor Dolphin, are actively stabilized semi-submersible USVs for MCM, route survey, and AUV supervision operations. This platform is highly stable even in extreme sea states and is capable of operating in both piloted and fully autonomous modes with long standoff. The Dorado is equipped with a keel winch and tow cable up to 400 m, and a dock for a towfish such as the ISE Aurora. Dorado can survey and tow at up to 12 knots due to its powerful diesel engine. (Customizable)



OBS | SUR | VC&L | A&T

## KONGSBERG

WWW.KONGSBERG.COM/MARITIME

km.sales@km.kongsberg.com



### KONGSBERG SOUNDER USV

The award-winning KONGSBERG Sounder USV system is a multi-purpose unmanned surface vehicle system with a unique hull design to ensure high performance for hydroacoustic applications. (Customizable)



OBS | SUR | A&T

## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

### INS

INSPECTION

### CON

CONSTRUCTION

### INT

INTERVENTION

### B&T

BURIAL & TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

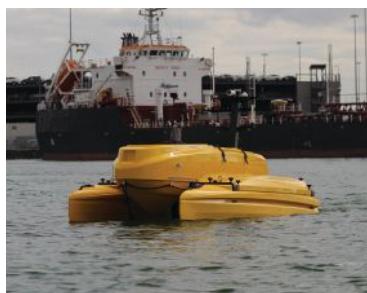
VEHICLE STATION KEEPING

### WT

WORK TOOLS

## L3HARRIS

WWW.L3HARRIS.COM | James Cowles | James.Cowles@L3Harris.com



### C-CAT 3

The C-Cat 3 is a robust and easy-to-use autonomous surface vehicle (ASV) ideally suited to shallow water operations in inshore and coastal environments.

The vehicle has a manually deployable keel and is capable of housing multiple standard sensors such as a USBL and MBES. (Customizable)



OBS | SUR | VC&L | A&T



### C-WORKER 4

The C-Worker 4 is a robust and capable ASV ideally suited to inshore and coastal survey. C-Worker 4 is a stable platform with a large payload capacity. Its 48 hour endurance and efficient fuel consumption of less than 2.5 liters of diesel an hour make it an ideal replacement for traditional survey vessels. (Customizable)



OBS | SUR | VC&L | A&T



### C-WORKER 5

The C-Worker 5 is the ideal solution to increasing survey coverage in limited timeframes. A proven offshore survey "force-multiplier", the vehicle can operate for up to 7 days at survey speeds up to 7 knots. (Customizable)



OBS | SUR | VC&L | A&T

**L3HARRIS**

[WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM) | James Cowles | James.Cowles@L3Harris.com

**C-WORKER 7**

The C-Worker 7 is a robust, offshore work-class ASV. Ideally suited for inspection and positioning applications, C-Worker 7 can negate the need for ships on station or seabed anchoring. Its 2.5 m x 1 m moon pool allows for easy integration of standard or custom payloads via an interchangeable frame. (Customizable)



OBS | SUR | VC&L | A&T

**C-TARGET 6**

C-Targets are a range of lightweight, easily deployed, highly maneuverable marine targets used for naval gunnery training, weapons testing and ship command and control assessments. C-Target 6 is a high-speed vehicle capable of acting as a direct fire target or as a tow boat for inflatable targets. (Customizable)



VC&L | A&T

**C-TARGET 9**

C-Targets are a range of lightweight, easily deployed, highly maneuverable marine targets used for naval gunnery training, weapons testing and ship command and control assessments. C-Target 9 is a high-speed vehicle capable of acting as a direct fire target or as a tow boat for inflatable targets. (Customizable)



VC&L | A&T

**L3HARRIS**

[WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM)

James Cowles | James.Cowles@L3Harris.com

**C-TARGET 13**

C-Targets are a range of lightweight, easily deployed, highly maneuverable marine targets used for naval gunnery training, weapons testing and ship command and control assessments. C-Target 13 is a high-speed vehicle capable of acting as a direct fire target or as a tow boat for inflatable targets. (Customizable)



VC&L | A&T

**LIQUID ROBOTICS - A BOEING COMPANY**

[WWW.LIQUID-ROBOTICS.COM](http://WWW.LIQUID-ROBOTICS.COM)

Sales | sales@liquid-robotics.com

**WAVE GLIDER**

Liquid Robotics designs and manufactures Wave Gliders, the first wave, and solar-powered unmanned ocean robots. With our partners, we address many of the planet's greatest challenges, by transforming how to assess, monitor, and protect the ocean. Visit [www.liquid-robotics.com](http://www.liquid-robotics.com) to learn more. Liquid Robotics is a subsidiary of Boeing. (Customizable)



OBS | SUR | A&T | VC&L | NDT

**MARINE ADVANCED ROBOTICS, INC.**

[WWW.WAM-V.COM](http://WWW.WAM-V.COM)

Marine Survey Department | sales@wam-v.com

**WAM-V 8 ASV**

The WAM-V 8 provides best-in-class stability where it counts. Head out with the confidence you need to get the job done. The WAM-V 8 has best-in-class portability. Disassemble and pack it into shipping cases that can be checked on most US domestic airline carriers.



## MARINE ADVANCED ROBOTICS, INC.

WWW.WAM-V.COM | Marine Survey Department | sales@wam-v.com



### WAM-V 16' USV

The WAM-V 16 has best-in-class portability. Transport it by trailer, or ship it using standard air freight. Launch it from the deck of a larger vessel, or assemble and launch it from shore. Able to launch and recover aerial and subsurface unmanned and autonomous systems from the stabilized central payload area. Increases the number of applications/missions from a single autonomous surface vessel.



### WAM-V 22 ASV

The WAM-V is the most maneuverable ASV available. Able to turn 360 degrees in its own length, the WAM-V makes quick speed and course corrections, allowing it to have the best on track performance on the market. The WAM-V 22 is the ideal ASV (autonomous surface vehicle) for larger marine data collection projects—as a primary survey instrument or as a force multiplier for existing vessels. The WAM-V 22 can be quickly assembled and deployed by two people. Launch and recover from shore or a vessel deck, or by trailer.



## MARINE TECH SAS

WWW.MARINETECH.FR/EN

Magali Mouries | m.mouries@marinetech.fr



### RSV

The RSV is a reliable solution able to carry out remote missions, with up to 48 h endurance. It can be equipped with multiple sensors and ROV for: SURVEY—detection, geophysical survey, subsea works monitoring. SURVEILLANCE/SECURITY—inspection, data acquisition in hostile environment. Main specifications: Long range control, real time data transfer up to 20 km, obstacle avoidance. Models: from 2.50 m to 5.20 m length. (Customizable)



OBS | SUR | VC&L | A&T

## TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
INSPECTION

CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

## TOOLS

VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC  
& TRACKING

CD  
CLEANING  
DEVICES

VSK  
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KEEPING

WT  
WORK TOOLS

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**TASKS****OBS**  
OBSERVATION**SUR**  
SURVEY**INS**  
INSPECTION**CON**  
CONSTRUCTION**INT**  
INTERVENTION**B&T**  
BURIAL &  
TRENCHING**RSV DOLPHIN**

The RSV Dolphin is a compact USV, dedicated to marine survey and site surveillance. Composed of 3 modules of 30 kg each (control command and electronic, hull, engines), the RSV Dolphin is easy to transport and deploy, with 6 hours endurance and up to 10 knots speed. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**RSV ORCA**

The RSV Orca is designed for open sea marine survey and surveillance missions. Its rugged design and stability allow the RSV to achieve missions in up to 1.5 m swell and 35 knots wind. Data recorded by sensors onboard are transmitted in real time to the operator to a control command base and positioning is provided by high precision GPS, gyrocompass and motion sensor. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**RSV SEA OBSERVER**

The RSV Sea Observer works up to sea state 4 to assist marine works, diving operations and aerial surveillance. Operated by 2 persons (remotely or autopiloted) from its control-command base, it is equipped with survey capabilities, ROV deployment for subsea inspection and captive aerial drone for surveillance on the water. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**MARITIME ROBOTICS**

WWW.MARITIMEROBOTICS.COM | Sales | sales@maritimerobotics.com

**MARINER**

The Mariner USV is a multipurpose unmanned vehicle with hull and superstructure made of polyethylene. The vehicle will fit into a standard 20 feet container for easy cargo shipping. The Mariner is equipped with a large payload room of more than one cubic meter and can be equipped with a variety of surface and sub-surface sensors/payload types.



SUR | INS | VC&amp;L | A&amp;T

**OTTER**

The Otter is an easily deployable and portable USV, which provides a cost-effective turnkey solution for bathymetric surveys in sheltered waters.



OBS | SUR

**DEVIL RAY T24**

In 2020, MARTAC launched the MANTAS Medium Category Vessel Line, consisting of the MANTAS T24 (24 ft or 7 m), T38 (38 ft or 11 m), and T50 (50 ft or 15 m) variants. This class of USV is designed for larger-scale operations and capabilities to integrate USVs, UAVs, UUVs, and ROVs. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**TASKS****OBS**  
OBSERVATION**SUR**  
SURVEY**INS**  
INSPECTION**CON**  
CONSTRUCTION**INT**  
INTERVENTION**B&T**  
BURIAL &  
TRENCHING**TOOLS****VC&L**  
VIDEO CAMERA & LIGHTING**NDT**  
NON-DESTRUCTIVE TESTING**A&T**  
ACOUSTIC & TRACKING**CD**  
CLEANING DEVICES**VSK**  
VEHICLE STATION KEEPING**WT**  
WORK TOOLS

IMAGENEX

# SONARS WITH PURPOSE: EQUIPPING UNCREWED ASSETS



» Imagenex 831L Pipe Profiler integrated on the SSM Solea ROV. (Image credit: Subsea Mechatronics)

A Spanish multinational power company, committed to sustainability and innovation, had a problem they needed to solve. They needed "to find innovative solutions for inspecting and cleaning large water supply pipes in electricity power plants." To find the solution, they decided to hold a competition.

## NEW APPROACH TO OLD CHALLENGES

These types of inspections and cleanings were previously performed by divers, but that has not proven to be the most efficient or safe way to go. Diving in dark, confined spaces with near-zero visibility is extremely dangerous.

So Subsea Mechatronics (SSM) decided to enter the competition with a safe, uncrewed solution consisting of a custom built SSM SOLEA ROV equipped with a Water Linked DVL A50 (Doppler Velocity Log) for positioning and an Imagenex 831L Pipe Profiling Sonar for visualization. The results were exactly what was needed, giving the win to Subsea Mechatronics!

At Imagenex Technology Corp. we enjoy hearing these types of stories and learning about the experiences of the Imagenex product users. The trials and tribulations endured by the end users ultimately influences any updates and adjustments made to our available products and options, as well as for new and upcoming products.

## EXPANDING PORTFOLIO

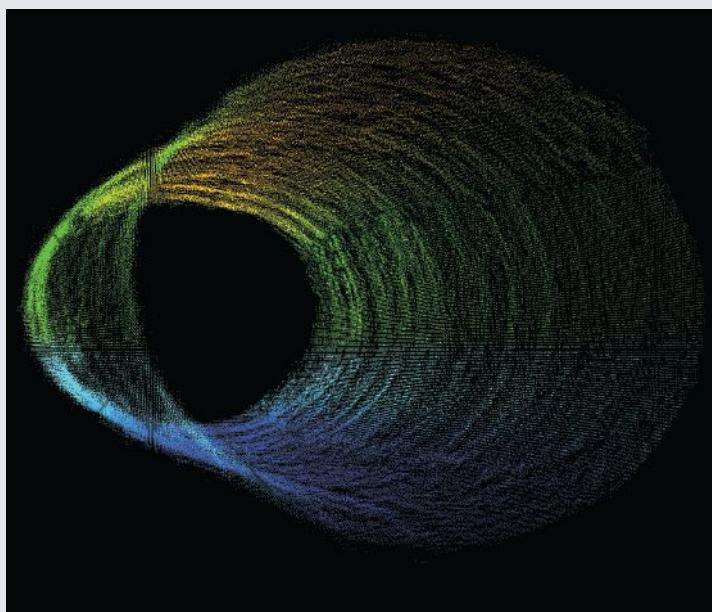
The Imagenex product line is constantly growing and is full of options for all kinds of uncrewed vehicles. Imagenex has become a leader in the industry for providing echo sounder or multibeam solutions for obstacle avoidance on AUVs.

Included in our product line is a scientific echo sounder with a data logger, originally designed for glider use, but it has made its way onto some other vehicles as well. The assortment of side scan kits has been quite popular amongst the autonomous underwater vehicles (AUVs), uncrewed surface vehicles (USVs), and remotely operated vehicles (ROVs) of the world.

The internal pipe and tunnel profiling sonars designed by Imagenex have been gaining in popularity and use around the globe. They have proven to be indispensable when tasked with mapping out long sections of pipeline and tunnel projects.

At Imagenex Technology Corp., we take pride in our unique and innovative company. Each of our sonars and echo sounders are carefully crafted, individually burned in and ocean tested before being shipped to our customers worldwide. Great appreciation goes out to our customers and end users who keep finding new ways and applications of integrating our products on their vehicles and in their projects.

For more information, visit: [www.imagenex.com](http://www.imagenex.com).



» Imagenex DT360Xi Internal Survey of 6' diameter corrugated metal pipe. (Image credit: Underwater Acoustics International)

**MARTAC**[HTTPS://MARTACSYSTEMS.COM](https://martacsystems.com)

info@martacsystems.com

**DEVIL RAY T38**

The T-38 USV can travel at a cruise speed of 25 knots (46 km/h) with a burst speed of 80 knots (148 km/h), weighs 2,950 kg, and draws just 18 inches (46 cm) of draft. The T38 has the ability to carry a payload up to 2,050 kg. Given the speed and carrying capacity of the T38-sized USV, it is readily apparent how it can fulfill logistics functions in amphibious operations. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**DEVIL RAY T50**

In 2020, MARTAC launched the MANTAS Medium Category Vessel Line, consisting of the MANTAS T24 (24 ft or 7 m), T38 (38 ft or 11 m), and T50 (50 ft or 15 m) variants. This class of USV is designed for larger-scale operations and capabilities to integrate USVs, UAVs, UUVs, and ROVs. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**MANTAS USV**

Unique class of next generation unmanned vessels. The MANTAS unmanned surface and hybrid vessels are accompanied with a robust Command and Control (C2) system known as TASKER. The MANTAS USV enables the coverage of open ocean and littoral waterways with extended on-station persistence capability. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**NAVOCEAN INC.**[WWW.NAVOCLEAN.COM](http://www.navocean.com)

Stuart Lochner | sales@navocean.com

**NAV2 SAIL AND SOLAR ASV FOR DATA COLLECTION**

Made for ocean data collection, the Nav2 Self-Navigating Sailboat provides average speeds of 2 knots, continuous communications, and is built for open ocean, coastal and freshwater surveys. At only 2 meters and 85 pounds, the Nav2 is easy to launch and land from shorelines, docks or boats. (Customizable)



OBS | SUR | A&amp;T

**OCEAN AERO**[WWW.OCEANAERO.COM](http://www.oceanaero.com)

Keith Blystone | info@oceanaero.com

**TRITON**

TRITON is the world's first and only autonomous environmentally powered ocean vehicle that sails and submerges for long-range, persistent ocean observation and data collection missions, providing intelligence gathering in some of the hardest-to-reach places on the planet. Triton can be configured to carry a variety of payloads to complete any mission. (Customizable)



OBS | SUR | A&amp;T | VC&amp;L | NDT

**OCEANALPHA**[WWW.OCEANALPHA.COM](http://www.oceanalpha.com)

Sales | Sales@oceanalpha.com

**M40P LONG ENDURANCE MULTI-FUNCTION USV**

M40P is a multi-purpose surveying unmanned surface vessel (USV) platform for estuary, on-shore, and off-shore applications. It's designed to facilitate efficient data acquisition for construction planning and routine maintenance in the field of offshore wind farms and oil and gas exploration.



OBS | SUR | VC&amp;L | A&amp;T

## OCEANALPHA

WWW.OCEANALPHA.COM | Sales | Sales@oceanalpha.com



### ME120 DETACHABLE HYDROGRAPHIC USV

ME120 utilizes a detachable catamaran design, making it easy for van transportation and for two people to assemble and disassemble. The 2.5 m USV is dedicated for MBES, SBES and other relatively smaller-size instruments. The Kongsberg M3 MBES is a highly recommended payload which has gone through series of testing and proved to be a highly mature and reliable solution. The payload cabin is replaceable so user can freely change and install different instruments according to mission requirements.



OBS | SUR | VC&L | A&T

### OFFSHORE SENSING AS

WWW.SAILBUOY.NO

David Peddie | info@sailbuoy.no



### THE SAILBUOY

The Sailbuoy is a field proven, long endurance ocean USV. Wind and solar powered Sailbuoys perform a variety of missions, from fish and algae detection to wind and wave observations. At 2 meters long, it is easily handled by two people and the satellite communication provides real-time ocean data. (Customizable)



OBS | A&T



### SL20 AUTONOMOUS HYDROGRAPHIC SURVEY USV

SL20 is a compact and portable unmanned surface vessel (USV) for hydrographic and bathymetric surveys. Its moon pool supports flexible deployment of different instruments, including ADCP and echo-sounders. Made from carbon fiber, the 1 m SL20 weighs 17 kg, and can be easily operated and transported by one person. Its powerful battery and low power consumption ensures 6 hours of endurance while sailing in 3 knots.



SUR | VC&L | A&T



### SL40 AUTONOMOUS HYDROGRAPHIC SURVEY USV

SL40 is a waterjet-propelled unmanned surface vessel (USV) dedicated for hydrographic and bathymetric surveys. The 1.6 m USV weighs 35 kg and can carry 15 kg of survey instrumentations including ADCP, water sonde, SBES, MBES or side scan sonar. The USV comes with obstacle avoidance system and RTK, and can be controlled by either a base station or a remote control. In March 2020, the Port of Hamburg introduced an SL40 USV to its Hydrographic Department for routine bathymetric survey. (Customizable)



OBS | SUR | VC&L | NDT | A&T

### OPEN OCEAN ROBOTICS

WWW.OPENOCEANROBOTICS.COM

info@openoceanrobotics.com



### DATA XPLORER

Data Xplorer is a solar powered ocean drone, also called an uncrewed surface vehicle (USV). Powered by the sun, it can travel on the ocean for months at a time collecting ocean and environmental data using its suite of sensors. It sends this information back in real-time through secure communication systems and clients can control the USV from anywhere in the world using our user portal. Capable of travelling in both coastal and open-ocean waters, and with a customizable platform for multiple sensor integration, it offers the ability to understand our oceans in a whole new way. Data Xplorer is designed to endure all sea states and is self righting.



OBS

### TASKS

OBS  
OBSERVATION

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### TOOLS

VC&L  
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& TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

### OSCIUS

HTTPS://OCIUS.COM.AU

contact@ocius.com.au



### BLUEBOTTLE USV

Bluebottle USVs have greater power, payload and performance compared to known competitors and are able to navigate freely and indefinitely across the world's oceans. Already, Ocius is working with two major private-sector partners to develop USVs capable of undertaking specific high value applications in hydrography and defense. (Customizable)



OBS | SUR | VC&L | A&T

**POWERSIGHT**[WWW.POWERSIGHT.ME/EN](http://WWW.POWERSIGHT.ME/EN)**POWERDOLPHIN**

Equipped with a unique dual-joint rotating camera whose shooting angle is as wide as 132°, PowerDolphin can rotate to meet the above-water and underwater shooting demands, with the field of view ranging from -150° to +70° (the horizontal position is 0°, and when the camera rotates towards the underwater areas, the angle becomes negative), offering you a brand-new 220° shooting angle and visual experience.

**POWERRAY**

PowerRay's integrated 4K UHD camera allows filmmakers to shoot underwater content for movies, research, and creative underwater photography. Take control of PowerRay and explore the underwater world!



OBS

**SAILDRONE**[WWW.SAILDRONE.COM](http://WWW.SAILDRONE.COM)

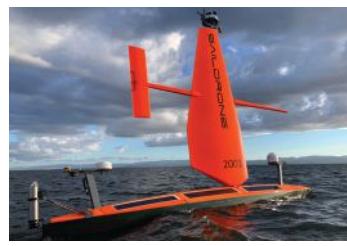
Matthew Woody | sales@saildrone.com

**SAILDRONE EXPLORER**

The Saildrone Explorer is a long-range, long-endurance USV for metocean, CO<sub>2</sub>, and fisheries missions. Propelled by the wind, it has a zero operational carbon footprint and can stay at sea for up to a year. No other platform can collect high-resolution data above and below the sea surface with the endurance of the Saildrone Explorer. (Customizable)



OBS | VC&amp;L | A&amp;T

**SAILDRONE**[WWW.SAILDRONE.COM](http://WWW.SAILDRONE.COM) | Matthew Woody | sales@saildrone.com**SAILDRONE SURVEYOR**

The 65-foot Saildrone Surveyor USV provides International Hydrographic Organization-compliant multibeam ocean mapping down to 36,000 feet that exceeds the quality delivered by traditional methods. Operating without crew, the Surveyor can map continuously, delivering high-quality hydrographic information faster at a fraction of the cost of survey ships. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**SEA-KIT INTERNATIONAL**[WWW.SEA-KIT.COM](http://WWW.SEA-KIT.COM)

James Hopper | j.hopper@sea-kit.com

**SEA-KIT H CLASS USV**

The H-class features a composite hull for higher transit speeds, giving it greater range and endurance, as well as active stabilizers to minimize roll. The new design has 12 m and 15 m variants, with the 12 m version transportable in a standard shipping container for rapid, low-cost deployment. Both variants can be davit launched.



OBS | SUR

## SEA-KIT INTERNATIONAL

WWW.SEA-KIT.COM

James Hopper | j.hopper@sea-kit.com



### SEA-KIT X CLASS USV

SEA-KIT X is a remotely controlled, versatile and configurable USV platform that can launch and recover remote vehicles, enabling missions including deep-water bathymetry, offshore and subsea asset inspection and hydrographic survey with reduced risk to personnel, significantly decreased costs and lower environmental impact. The SEA-KIT X class design holds Unmanned Marine Systems certification from Lloyd's Register. (Customizable)



OBS | SUR | VC&L | A&T | NDT

## SEAFLOOR SYSTEMS, INC.

WWW.SEAFLOORSYSTEMS.COM

Josh Grava | info@seafloorsystems.com



### SEAFLOOR UNMANNED & AUTONOMOUS VESSELS

Seafloor has been building USVs for over a decade. We lead the market with dynamic platforms that extend the capabilities of traditional survey equipment, enabling surveyors to remotely analyze otherwise challenging environments. Applications include inspection and survey of mines, sewage treatment plants, contaminated lakes, and rivers. Both remotely controlled and autonomous navigation suites available. Check out our turnkey USV platforms to efficiently conduct missions on water, reduce time spent in the field, and save on labor costs. (Customizable)



OBS | SUR | VC&L | A&T

## SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM

info@searobotics.com



### HYCAT

Integrated series of customizable plug-and-play sensors, making it one of the most versatile tools for water quality survey on the market. The HYCAT is SUV-portable and easy to launch, with no ramp or dock access required. Ideal for water quality studies, bathymetry, water velocity, remote data acquisition, and depth measurement. (Customizable)



OBS | SUR | NDT | A&T

## TASKS

OBS  
OBSERVATION

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SURVEY

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INSPECTION

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CONSTRUCTION

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BURIAL &  
TRENCHING

## TOOLS

VC&L  
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& TRACKING

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CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

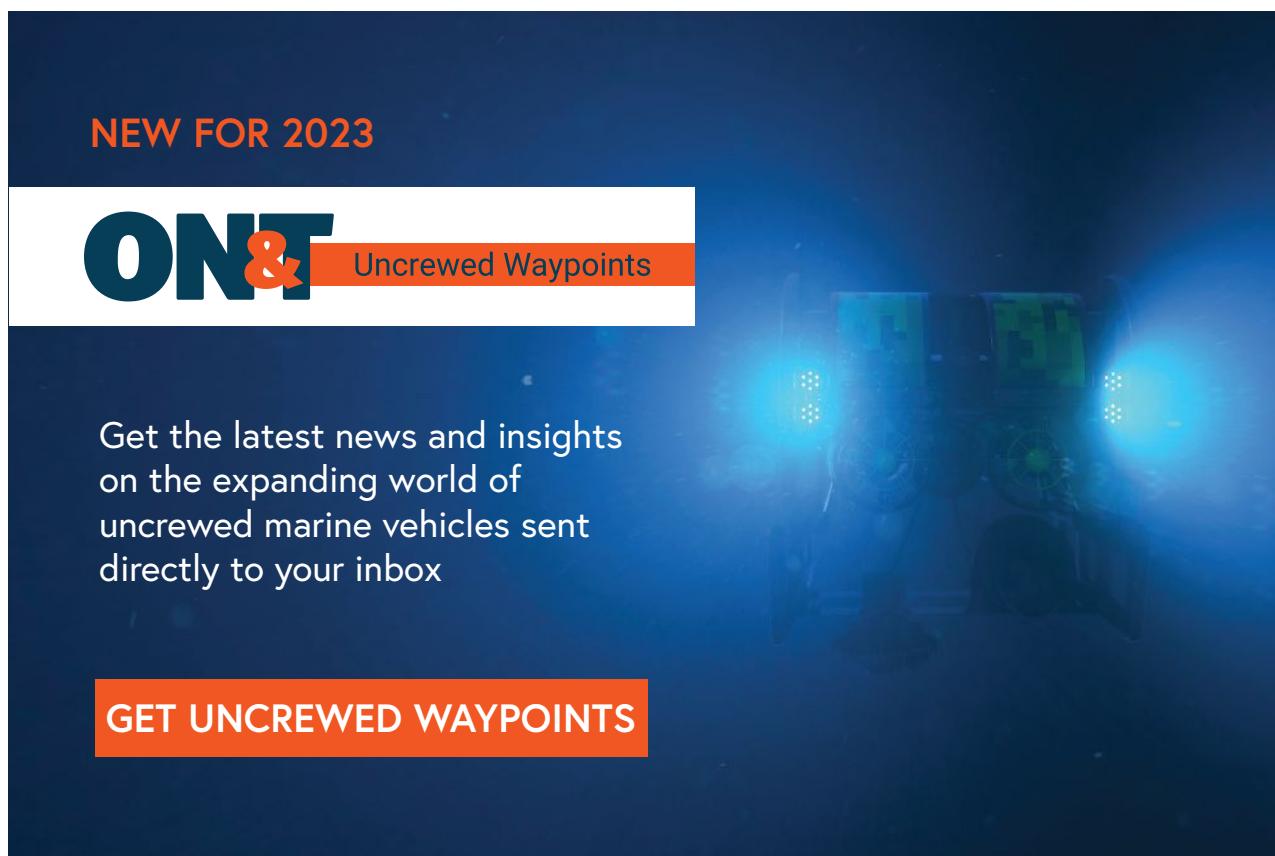
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GET UNCREWED WAYPOINTS



## SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM | info@searobotics.com



## TASKS

**OBS**  
OBSERVATION**SUR**  
SURVEY**INS**  
INSPECTION**CON**  
CONSTRUCTION**INT**  
INTERVENTION**B&T**  
BURIAL &  
TRENCHING**SR-CYBERHELM SYSTEMS**

Autonomous conversion made simple. Our SR-CyberHelm options put you in control of your ASV design and build. Whether you wish to retrofit an existing marine asset or incorporate one of our packages into a new vessel, we have the on-staff engineering expertise and fabrication resources to ensure seamless integration and interfacing. (Customizable)



OBS | SUR | INS

**SR-ENDURANCE 7.0**

SR-Endurance 7.0 is a aluminum workboat class multi-mission ASV, suitable for a range of coastal and offshore operations. The SR-Endurance 7.0 has diesel-electric hybrid propulsion, an automated A-frame boom type launch and recovery system (LARS) and can be operated as a manned or unmanned vessel. The level of autonomy can be configured per mission. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

**SR-ENDURANCE 8.0**

The SR-Endurance 8.0 model features an exclusive hydrographic winch coupled with a simple A-Frame over-boarding assembly, including an instrumented over boarding sheave capable of launching and recovering additional ride-on assets, such as ROVs. The system is equipped to deploy various towed instruments, or 100 kg deployable payloads. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

## TOOLS

**VC&L**  
VIDEO CAMERA  
& LIGHTING**NDT**  
NON-  
DESTRUCTIVE  
TESTING**A&T**  
ACOUSTIC  
& TRACKING**CD**  
CLEANING  
DEVICES**VSK**  
VEHICLE STATION  
KEEPING**WT**  
WORK TOOLS

## SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM | info@searobotics.com

**SR-SURVEYOR M1.8**

The integrated MBES allows surveyors to cover large swath width hydrographic survey data more efficiently and capture a 360-degree view of all data points. Central to the design is a Velodyne Puck LiDAR for terrestrial mapping, a distinct advantage when inspecting coastal infrastructure, such as near-shore pipelines or surveying bridges, offshore rigs. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

**SR-UTILITY 2.5**

While compact (2.5 m in length), the SR-Utility 2.5 is a comprehensive hydrographic system which features multibeam, echo sounders, support sensors, as well as an SV cast winch, deployment cart and road trailer. (Customizable)



OBS | SUR | INS | NDT | A&amp;T



# OCEAN SONICS



## The industry's most popular hydrophone.

Small in size, easily synchronized and simple to use; the icListen offers seamless integration on all autonomous platforms. Collect accurate and reliable real-time data to any onboard system.

Contact [sales@oceansonics.com](mailto:sales@oceansonics.com)  
+1 902-655-3000  
[www.oceansonics.com](http://www.oceansonics.com)



## SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM | info@searobotics.com

**SR-UTILITY 3.0**

The 3.0 was originally designed as a Heavy Load Water Sampling ASV in 2019 but has been developed to carry an interchangeable suite of customizable sensors and payloads. We call it our "Pick-Up Truck" ASV given its versatility and durability. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

**SR-UTILITY 3.6**

The SR-Utility 3.6 is a collapsible, multifunctional ASV that offers large vessel capabilities in a package that is easily transported and stored (in two standard 65" pallet containers). This vehicle is designed specifically to support large multibeam sonar systems and is available with an optional autonomous sound velocity cast winch. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

**SR-UTILITY 5.7**

The SR-Utility 5.7 is a heavy payload, long endurance USV and customizable for various applications. Featuring a large configurable payload deck, this USV is transported in a 20 ft container. The onboard sensor suite includes single- or multi-beam echo sounders, sub-bottom profilers, side scan sonar, CTD, spectrometers, ADCPs, magnetometers, and cameras. SeaRobotics can provide and integrate various additional sensors and equipment upon request. (Customizable)



OBS | SUR | INS | VC&amp;L | A&amp;T | VSK

## TASKS

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CONSTRUCTIONINT  
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TRENCHING

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KEEPINGWT  
WORK TOOLS

## SEATRAC SYSTEMS, INC.

WWW.SEATRAC.COM

Sales | sales@seatrac.com

**SEATRAC SP-48**

The SP-48 is a persistent solar powered USV used to perform real-time data collection and communications in all marine environments for scientific, commercial and defense applications. With its large power and payload capacity, the SP-48 can be customized with best-in-class combinations of payloads including high-powered sensors during any one mission. (Customizable)



SUR | OBS | VC&amp;L | A&amp;T

## SUBSEASAIL LLC

WWW.SUBSEASAIL.COM

Michael Jones | mbjones@subseasail.com

**GEN7 MONOHULL OBSERVATION  
VESSEL & RIGID PAM ARRAYS**

San Diego-based SubSeaSail is developing affordable, autonomous, 100% energy harvesting, long-duration, submerging sailing platforms & sensors. SSS has three lines of business: 1) monohull, semi-submersible observation vessels; 2) multi-hull, surface cargo vessels; 3) unique sensors ideally suited for these vessels including rigid Passive Acoustic Monitoring (PAM) Arrays & weather station. (Customizable)



OBS | A&amp;T

## SUBSEA TECH

WWW.SUBSEA-TECH.COM

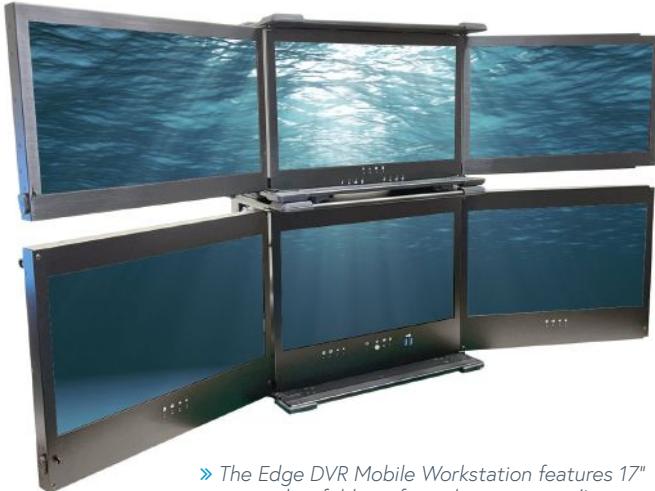
Sales | st.sales@subsea-tech.com

**CAT-SURVEYOR**

CAT-Surveyor is a teleoperated or autonomous USV allowing acquisition of hydrographic data or surveillance for inland waters, harbor and coastal areas. High payload capacity (80 kg) allows embedding multiple sensors for scientific, defense and civil missions. CAT-Surveyor was the first USV able to launch a mini-ROV. (Customizable)



SUR | OBS | VC&amp;L | A&amp;T



» The Edge DVR Mobile Workstation features 17" screens that fold out from the main unit. (Image credit: Digital Edge Subsea)

A world leader in offshore digital video recording and inspection systems, Digital Edge Subsea develops and manufactures products for use throughout the offshore oil and gas industry, working with clients of any size to provide the system that best suits their needs. The company, established more than 12 years ago, boasts a team of hand-picked specialists who are proud to nurture strong customer relationships.

Digital Edge Subsea is now pleased to add another industry first to an expanding product range: the Mobile EdgeDVR Workstation. A great solution for those who have a need for portability or for projects short on space, this portable workstation has 17" integrated triple monitor display units in a small form factor for field deployment. The three screens fold out from the main unit to create a compact system capable of displaying sonar, ROV topside and DVR displays.

It has a total storage capacity of 30 TB, has the same capabilities as the rack mounted system and 4 channel HD recording capability.

The system has 3 removable hard drives which store the survey video and photos. The Windows 10 Pro operating system is stored on a solid state hard drive for increased speed and reliability, with a second solid state hard drive for redundancy. The system is supplied in a custom Pelican case.

#### RELIABLE SOFTWARE OPTIONS

Digital Edge offer 3 versions of software (Lite, Edge and Pro) and the Mobile EdgeDVR is available in all 3. In addition, you can create a command and control field deployable computing solution by adding a further mobile display unit of another three 17" screens.

You can be assured of a reliable system, whichever unit you choose. Digital Edge also supply excellent technical support

## A PORTABLE OFFSHORE DVR WORKSTATION AND INSPECTION SOLUTION

where all systems can be remotely accessed. All units have been designed to be simple to use by personnel of all levels of ability and training is also covered for increased peace of mind.

The 3 levels of software available:

- 1. EdgeLite** is an entry level unit, suitable for surveys and inspections, where there is no requirement for eventing.
- 2. EdgeDVR** is able to record 4 channels of HD simultaneously. It continues to offer the creation of Workpacks and offline editing.
- 3. EdgePro** has an extended database that allows tasks to be assigned to components under inspection. This allows customers to either create their own Workpacks, or they can be created in-house at Digital Edge. It also provides an automatically generated report to capture inspection results.

#### DEPENDABLE DATA STORAGE

EdgeArchive is a separately licensed application that creates a real time Mirror of the Project data, from the two Client Deliverable folders and the Raw editable Project within EdgeDVR, without the need for a 3rd party application.

EdgeArchive handles the transfer of data from the internal DVR drives to Client storage, either on a NAS a Raid, or a phased delivery to multiple external hard drives.

Being a native app, the data transfer ensures that the quality of Live recordings are not impacted by a 3rd party program trying to access the same file that the DVR app is currently using.

For more information, a quote, or a demonstration of the system, contact [info@digitaledgesubsea.com](mailto:info@digitaledgesubsea.com).

**SUBSEA TECH**

[WWW.SUBSEA-TECH.COM](http://WWW.SUBSEA-TECH.COM) | Sales | st.sales@subsea-tech.com

**CATAROB**

Catarob has been especially designed to carry out tele-operated or autonomous inspection, survey and modeling missions in shallow inland waters and harbor areas. Lightweight and compact (50 kg, 180 cm), Catarob is easily transported and deployed by a single operator. Open architecture and high speed PC to PC communication allow integrating multiple sensors. (Customizable)



SUR | OBS | VC&L | A&T

**SEACAT**

The SeaCAT USV is a sea going catamaran type drone designed for automatic or remotely controlled inspection and survey missions on offshore infrastructures. SeaCAT offers an innovative multi-drone platform by supporting an ROV and a UAV to carry out inspection below and above water with a single control interface. (Customizable)



SUR | OBS

**TELEDYNE OCEANSCIENCE**

[WWW.TELEDYNEMARINE.COM/OCEANSCIENCE](http://WWW.TELEDYNEMARINE.COM/OCEANSCIENCE)  
Sales | Oceanscience.Sales@teledyne.com

**Q-BOAT 1250**

Teledyne Oceanscience Q-Boats® are the number one choice for reliable remotely-controlled data collection in streams, rivers, lakes and coastal waters. The new Q-Boat 1250 has been designed specifically for shallow water flow and discharge measurements. This one-man portable remote vehicle is easy to set up, easy to operate, and accepts most industry standard ADCPs. (Customizable)



SUR | A&T

**TELEDYNE OCEANSCIENCE**

[WWW.TELEDYNEMARINE.COM/OCEANSCIENCE](http://WWW.TELEDYNEMARINE.COM/OCEANSCIENCE) | Sales | oceanscience.sales@teledyne.com

**Q-BOAT 1800**

The Teledyne Oceanscience Q-Boat® 1800 with ruggedized design and interchangeable sensor well, offers an entirely new option for high-resolution shallow-water hydrographic surveying. The boat offers multibeam bathymetry data where conventional methods are not feasible or safe, and helps avoid mobilizing a workboat or vessel of opportunity. (Customizable)



SUR | A&T

**Z-BOAT 1250**

The Z-Boat 1250 is easy to operate. The integrated echosounder and lightweight, resilient ABS hulls make the Z-Boat 1250 convenient for a single operator. At under 50 pounds fully outfitted with instrumentation, the unit is easily single person portable. (Customizable)



SUR | NDT | A&T

## TELEDYNE OCEANSCIENCE

WWW.TELEDYNEMARINE.COM/OCEANSCIENCE | Sales | oceanscience.sales@teledyne.com



### Z-BOAT 1800

The Teledyne Oceanscience Z-Boat® 1800 with ruggedized design and interchangeable sensor well, offers an entirely new option for high-resolution shallow-water hydrographic surveying. The boat offers multibeam bathymetry data where conventional methods are not feasible or safe, and helps avoid mobilizing a workboat or vessel of opportunity. (Customizable)



SUR | NDT | A&T



### Z-BOAT 1800T - TRIMBLE EDITION

The Teledyne Z-Boat 1800-T, is a high-resolution shallow water hydrographic unmanned survey vehicle created in collaboration with Trimble Marine Construction. (Customizable)



SUR | NDT | A&T

## UNMANNED SURVEY SOLUTIONS

WWW.UNMANNEDSURVEYSOLUTIONS.COM

James Williams | info@unmannedsurveysolutions.com



### ACCESSION USV

The Unmanned Survey Solutions (USS) Accession Class USV is designed by surveyors, for surveyors. The modular design allows for base boat length of 3.50 m to extend to 4.25 m or 5.00 m by adding additional hull sections. Payload agnostic and fully customer configurable the Accession USV offers unrivalled versatility for coastal and offshore deployments. (Customizable)



OBS | SUR | VC&L | A&T

## UNMANNED SURVEY SOLUTIONS

WWW.UNMANNEDSURVEYSOLUTIONS.COM

James Williams | info@unmannedsurveysolutions.com



### INCEPTION MKI USV

The Unmanned Survey Solutions (USS) Inception Class MK 1 USV has been developed to meet the demanding requirements of the shallow water sector. This hydrographic survey vessel is composed of tough aluminum hulls, weed cutting propellers and equipment to provide bathymetric surveys in areas using single beam sonars where access for a traditional survey vessel is restricted. (Customizable)



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### INCEPTION MKII USV

The Unmanned Survey Solutions (USS) Inception Class MK II USV is designed by surveyors, for surveyors. This modular, versatile and robust USV is composed of tough aluminum hulls, weed cutting propellers and a modular payload pod for housing various sonar and environmental sensors. The design concept of the Inception MK II is modular from the internal electronics to the main vessel components. (Customizable)



OBS | SUR | VC&L | A&T

## XOCEAN

WWW.XOCEAN.COM

Sales | sales@xocean.com



### XO-450 USV

XOCEAN's USVs offer full unmanned Over The Horizon operations using satellite communications. Each USV sends real time images and situational awareness data to XOCEAN's Operations Centre where a team of qualified USV pilots keep watch and control the vessels 24/7. XOCEAN's USV pilots are responsible for collision avoidance.



SUR | OBS

## TASKS

OBS  
OBSERVATION

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## TOOLS

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VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

**YSI INTEGRATED SYSTEMS & SERVICES**

WWW.YSI.COM | YSI Systems | ysi.systems@xyleminc.com

**HYCAT ASV**

The HYCAT ASV is the newest element in the Xylem brand Autonomous and Remote Vehicle Monitoring Solutions. This unique ASV combines products from multiple brands to provide a total solution for your site. Sensors have plug-and-play capabilities, allowing the HYCAT to be customized to your specific site needs. (Customizable)



SUR | OBS | NDT | A&amp;T

**TASKS****OBS**  
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SURVEY**INS**  
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INTERVENTION**B&T**  
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TRENCHING**TOOLS****VC&L**  
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ACOUSTIC  
& TRACKING**CD**  
CLEANING  
DEVICES**VSK**  
VEHICLE STATION  
KEEPING**WT**  
WORK TOOLS**ZELIM**

HTTPS://WWW.ZELIM.CO/

enquiries@zelim.co

**GUARDIAN**

As a first of its kind, the 8 m 'Guardian Class' combines Zelim's innovative Swift Rescue Conveyor with a Fast Rescue Craft that has unmanned operation capability. Guardian is designed for speed and incorporates Zelim's two-step recovery system. The system's real time, AI-based casualty detection can spot and track multiple casualties in the water in all conditions. Guardian will feature remote command and control capability, making it the world's first uncrewed rescue vessel.



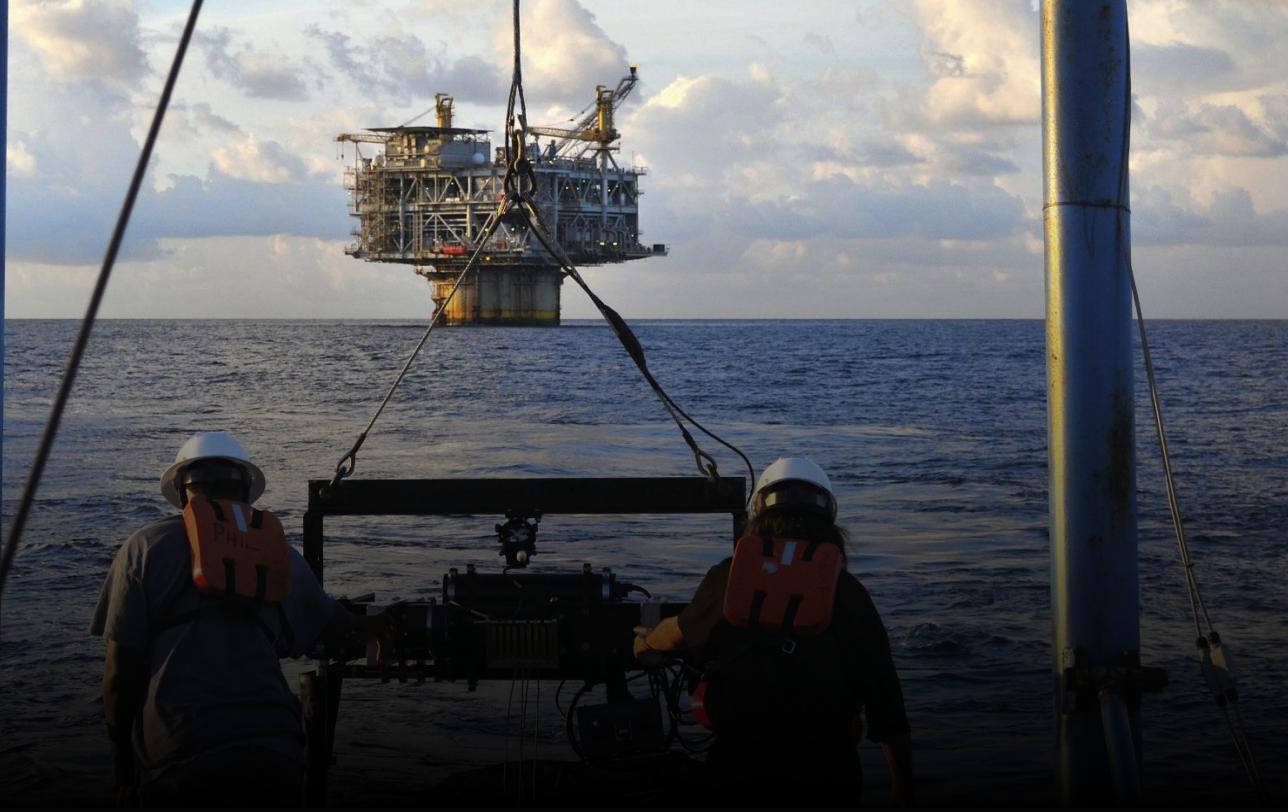
OBS | SUR | A&amp;T

**RQPOD REMOTE SURFACE WATER VEHICLE**

The YSI rQPOD is a lightweight, easy-to-assemble propulsion system that can fit to many board-style platforms. It allows users to collect data over a large spatial area in minutes, and in areas otherwise inaccessible. The 2.4 GHz remote control allows operators to control the system from up to 250 meters with a clear line of sight, with real-time data visualization options that allow users to make mission changes and decisions on the spot. (Customizable)



SUR | OBS | NDT | A&amp;T



## Whatever the mission...

Okeanus designs and manufactures mission-critical ocean equipment for commercial and government agencies throughout the world. We harness breakthrough Science and Technology to equip clients with the tools and trusted support they need for the rigors of ocean exploration.

Our comprehensive product portfolio—from customized deck equipment, including winches, LARS and A-Frames, to our extensive range of underwater survey and sampling equipment—is available for purchase or rent, and rapid deployment.

Whatever your mission, Okeanus has turn-key solutions to make it a success.

[okeanus.com](http://okeanus.com)





# OCEAN LISTENING TRANSFORMED BY A NEW ERA OF HYDROPHONES

Nearly every living thing in the ocean depends on sound to survive. And over the last half century, human produced underwater sound levels have increased by 20 dB. As shipping, construction, military activity, and exploration within our oceans increases, our ability to measure the underwater noise created by these activities has never been more critical.

Since 2012, Ocean Sonics has been developing underwater listening devices, known as hydrophones, to help identify ocean sounds accurately, and reliably. In fact, we were the first digital hydrophone capable of doing so in "real time." Researchers have been post-processing mountains of data for years, and now cutting-edge smart hydrophones can display and identify sounds being captured as they happen in real-time.

## DEVELOPED WITH INTEGRATION IN MIND

Over the past decade, we have supported numerous operations, expeditions, and recoveries—from pipeline leak detection, construction noise monitoring, to marine mammal tracking. We are continually innovating our products to be smaller and lower in power, making them ideal for use on even the smallest autonomous vehicles. With enhanced processing and easy to use arrays, integrating our hydrophones onto the latest ROVs, AUVs, USVs, gliders, crawlers, and towed vehicles has been a major priority in our development and innovation.

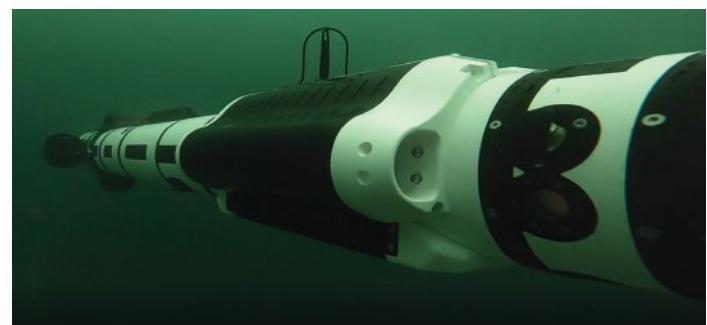


» Slocum glider equipped with an Ocean Sonics icListen Hydrophone on the front of the glider for whale tracking. (Image credit: Nicolas Winkler Photography/Ocean Tracking Network)



» Seaglider equipped with Ocean Sonics icListen hydrophone for underwater listening. (Image credit: Cyprus Subsea)

For instance, our partners at Cellula Robotics have integrated our icListen hydrophone onto their AUVs to monitor real-time subsea acoustic noises in Howe Sound, British Columbia. Likewise, our partners at Cyprus Subsea and Eelume were able to mount the icListen hydrophone onto their AUVs which enabled near real-time transmission of data corresponding to events detected by the hydrophone.



» Eelume is a self-propelled autonomous robotic arm able to support an Ocean Sonics icListen hydrophone. (Image credit: Eelume Subsea)

Traditionally, products such as hydrophones have not been easily integrated with devices such as AUVs, due to their size and weight. Solving this problem by designing hydrophones with the goal of integration in mind has and will continue to allow our products to expand and support more complex missions and underwater operations like those of Cellula Robotics and Cyprus Subsea.

## THE FUTURE

So, what's the future of smart hydrophones? Short of the challenges that come with developing underwater technology, designing a hydrophone that is even smarter, smaller, low-powered and contains edge-processing, while having the ability to stream large amounts of data, has been our top priority. And our newest design—which will be launching later this year—will help bring this future to life so that even more partners are able to feel confident integrating hydrophones onto their autonomous vehicles.

For years, we've worked to be the leader in ocean listening and it is rooted in our pledge to make the world's best digital hydrophone, but now, we see it as giving a voice to the ocean. As we continue to face new challenges in the fight to protect our ocean, we know that ocean listening technology will play a critical role in ocean research and underwater exploration.

For more information, visit: [www.oceansonics.com](http://www.oceansonics.com) or contact [sales@oceansonics.com](mailto:sales@oceansonics.com).

ON&T

2023

# GLIDERS & PROFILERS



ENVIRONMENTAL



DEFENSE



OFFSHORE OIL & GAS



SCIENCE



SEABED MINING



OCEAN RENEWABLES



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## GLIDERS & PROFILERS

### ALSEAMAR

[WWW.ALSEAMAR-ALCEN.COM](http://WWW.ALSEAMAR-ALCEN.COM)  
Romain Tricarico | [tricarico@alseamar-alcen.com](mailto:tricarico@alseamar-alcen.com)



#### SEAEXPLORER

The SeaExplorer is the ultimate low-logistics and user-friendly glider designed for Oceanographic, Defense and Oil & Gas applications. Its rechargeable battery and its fully interchangeable payloads greatly simplify its maintenance, allowing huge savings in terms of time and money, making it the glider with the lowest cost of ownership on the market. (Customizable)



OBS | SUR | A&T | NDT

#### TASKS

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### EXOCETUS AUTONOMOUS SYSTEMS

[WWW.EXOCETUSSYSTEMS.COM](http://WWW.EXOCETUSSYSTEMS.COM)  
Joe Turner | [turner@exocetussystems.com](mailto:turner@exocetussystems.com)



#### MOD2 GLIDER

The MOD2 Glider™ is the next step forward in long duration subsea monitoring. Designed for the user, the glider can be easily configured, features a large sensor bay, and runs open software that can support both off-the-shelf and custom sensors. The powerful engine autonomously transitions through fresh and salt water. (Customizable)



OBS | SUR | VC&L | A&T | NDT

### DEEPINFAR OCEAN TECHNOLOGY

[HTTPS://WWW.DEEPINFAR.COM/EN](https://WWW.DEEPINFAR.COM/EN)  
Sales | [info@deepinfar.com](mailto:info@deepinfar.com)



#### SEA WING (HAIYI) UNDERWATER GLIDER (AUG)

Underwater glider is a new type of underwater robot driven by buoyancy and attitude angle. Featuring low cost, long battery life, reusability and certain degree of track controlling in the sea, it plays important role in maneuvering, high resolution and fine observation of multi-scale ocean processes. (Customizable)



OBS | SUR | A&T | NDT

### DEL MAR OCEANOGRAPHIC

[WWW.DELMAROCEAN.COM](http://WWW.DELMAROCEAN.COM)  
Chris Kontoes | [chris@delmarocean.com](mailto:chris@delmarocean.com)



#### WIREWALKER

The Wirewalker is a vertically profiling instrumentation-platform, powered by ocean waves. Through the Wirewalker's rapid profiling and ability to integrate a wide variety of sensor payloads, it brings new life to typical one-dimensional sensor time-series as a 2-D depth-time image where an enormous increase in information and intuition is achieved. (Customizable)



OBS | A&T | NDT

### TELEDYNE WEBB RESEARCH

[WWW.TELEDYNEMARINE.COM/WEBB-RESEARCH](http://WWW.TELEDYNEMARINE.COM/WEBB-RESEARCH)  
Chris DeCollibus | [webbresearch@teledyne.com](mailto:webbresearch@teledyne.com)



#### SLOCUM G3 GLIDER

The Slocum glider is a buoyancy driven AUV which enables long endurance remote water column observation for academic, military, and commercial applications. Slocum gliders are modular, allowing for a variety of sensor and payload options for oceanographic observations. Over 60 sensors and other options are available to address a wide variety of ocean conditions and sampling requirements. (Customizable)



OBS | A&T | NDT



# Seathe Difference

Photos: Aft deck and control room of CSA's R/V Dolphin

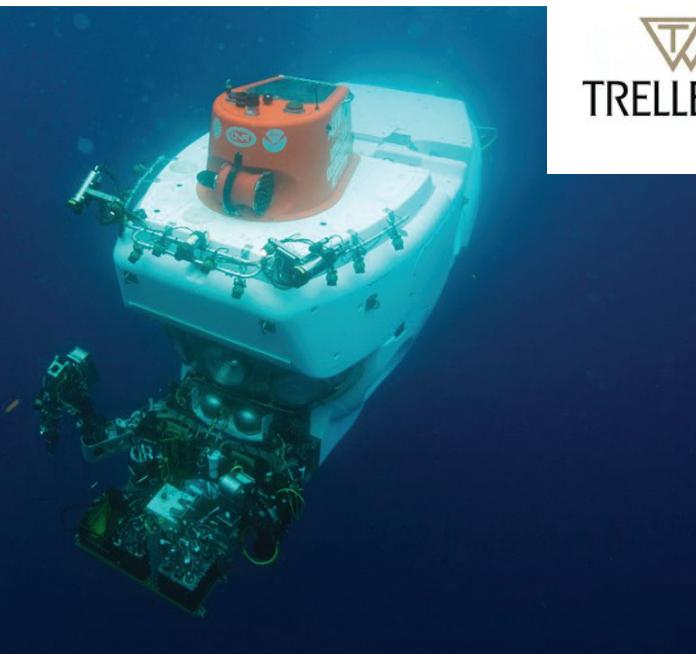
From Coastal  
to Deep Sea



For over fifty years, CSA Ocean Sciences has partnered with leading commercial, academic, and government organizations around the globe to design and implement best-in-class marine environmental programs and mitigation strategies.

Find out how we can help manage your future environmental footprint, today.

[csaocean.com](http://csaocean.com)



## ADVANCING SYNTACTIC FOAMS

» Block form or custom molded syntactic foam is installed in manned submersibles, such as the legendary Alvin. (Image credit: WHOI)

Trelleborg Applied Technologies manufactures a range of high performance, low density syntactic foam for deep sea buoyancy applications.

These composite foams provide ultra-low densities by selecting only the highest specification hollow glass microspheres, called Eccospheres®, and combining them within a rigid, high-strength resin system. The syntactic foam is typically cast into blocks and then is used to prepare large buoyancy modules that can be readily shaped to conform to hull contours and outfitted for installation in the forward and aft free-flood areas of submarines.

Oceanographers also depend on syntactic foams to suspend instrumentation in deep ocean studies. For these applications, the syntactic foam is used in either block form or custom molded shapes for installation in manned and unmanned submersibles, such as the legendary human occupied vehicles (HOVs) Alvin and Jason that were used to discover and explore the RMS *Titanic*.

### MEETING BROADENING REQUIREMENTS

Trelleborg Applied Technologies produces various grades of syntactic foams, called Eccofoam®, to meet our customer's broad range of requirements.

TG Grade syntactic foams are lightweight and economical for building manned and remote operating vehicles. The foams are also used to manufacture mine neutralization systems because of their zero magnetic and sea-water comparable acoustic signatures.

Applications include hydroplanes, rudders, trim adjustment modules for submarines and specialized applications such as acoustic

windows due to the material profile and ability to significantly improve sonar functions. TG-24AE and EL-28AE are available for sensor and other electronic applications.

### RANGE OF FOAM GRADES

EL Grade epoxy syntactic foams are the material of the choice for manned and unmanned submersibles in harsh environments because of their density range, high temperature stability, and ability to withstand exposure to diesel fuels and hydraulic fluids.

DS Grade legacy products available upon request only.

VF Grade syntactic foams are supplied as user-processable kits of pre-mixed raw materials, allowing open casting, vacuum-assisted casting, or injection of moderate-density syntactic foams. These versatile materials provide more economical solutions for cast-to-shape, void filling, or potting applications where higher-performance block products are not an option. The standard kit mix volumes are 0.05, 0.53, or 7 ft³. A variety of service depth/density combinations are available.

Custom combinations are also available as is the option for Trelleborg to supply these materials pre-cast in standard block formats, known as TBF Grade syntactic foams. Historically, VF grades were also marketed under the EF and FC nomenclature.

SS Grade Syntactic foams are epoxy-based, utility-grade foams supplied in large board sizes for more economical subsea buoyancy applications. Compared to TG, EL, or DS foams, these materials trade higher density and lesser performance for the ability to supply in larger casting sizes. The standard board

size has a 4 ft³ volume. Please inquire about other density/depth combinations or custom board geometries. Some of these foams were historically marketed under the "S" series prefix.

### Eccofoam® Product Sizes

Eccofoam® TG and EL Grades are available in the following dimensions:

- 6 x 12 x 24 in (152.4 x 304.8 x 609.6 mm)\*
- 6 x 19.5 x 29.5 in (150 x 500 x 750 mm)

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- 4 x 12 x 24 in (101.6 x 304.8 x 609.6 mm)

\*Includes Macrospheres

For more information, visit:  
[www.trelleborg.com](http://www.trelleborg.com).



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2023

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### 5G International Inc.

#### USV

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www.ac-cess.com

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+61414531321  
marketing@advancednavigation.com  
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### AKVA Group | Sperre ROV

#### Technology

#### Work Class ROV

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www.sperre-as.com

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#### Glider

60 avenue Olivier Perroy  
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+33 (0) 442 616 480  
tricarico@alseamar-alcen.com  
www.alseamar-alcen.com

### Anduril

#### AUV

California USA  
+1 (949) 891-1607  
contact@anduril.com  
www.anduril.com

### Aquatic Drones

#### USV

Scheepswerf 1  
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+31 88 988 88 88  
info@aquaticdrones.eu  
https://aquaticdrones.eu/

### Argus Remote Systems

#### Observation ROV with Payload Option, Work Class ROV

Nygårdsviken 1  
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 Sales  
+47 (0) 91377109  
sales@argus-rs.no  
www.argus-rs.no

### Atlas Elektronik

#### AUV, USV

Sebaldsbruecker Heerstr. 235  
28309 Bremen Germany  
+49 (0) 421457-2  
info@atlas-elektronik.com  
www.atlas-elektronik.com

### AutoNaut Ltd.

#### USV

Unit A2, Chichester Marina  
Chichester, West Sussex,  
PO20 7EJ UK  
+44 (0) 1243 511 421  
info@AutoNautUSV.com  
www.autonautusv.com

### Autonomous Marine Systems

#### USV

28 Dane St.  
Somerville, MA, 02143 USA  
+1 (703) 348-4778  
info@automarinesys.com  
www.automarinesys.com

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#### AUV

212 South Meadow Road, Suite 2  
Plymouth, MA, 02360 USA  
 Paco Santana  
+1 (774) 343-9023  
riptide@baesystems.com  
www.baesystems.com/riptide

### Bayonet Ocean Vehicles

#### Towed & Bottom Crawling Vehicle

Headquarters: 10 E. Main Street,  
Richmond, VT 05477 USA  
 Nick Hartman  
+1 (802) 434-6033  
sales@bayonetoceanc.com  
www.bayonetoceanc.com

### Bedrock Ocean

#### AUV

Richmond, CA 94804 USA  
+1 (802) 434-6033  
info@bedrockoceanc.com  
www.bedrockoceanc.com

### Bellamare, LLC

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6491 Caminito Aronimink  
La Jolla, CA USA  
 Charles Cousin  
+1 (858) 578-8108  
charlescousin@bellamare-us.com  
www.bellamare-us.com

### BlueLink, LLC

#### Observation ROV with Payload Option

614 CLARENCE LN  
Escondido USA  
 Jeff Conger  
+1 (800) 680-7071  
jeff\_conger@hotmail.com  
https://blue-linked.com/

### BlueRobotics

#### Observation ROV

2740 California  
St. Torrance,  
CA 90503 USA  
 Sales  
sales@bluerobotics.com  
www.bluerobotics.com

**Blueye Robotics****Observation ROV**

Transittgata 10  
Trondheim, 7042  
Norway

📞 +47 40 00 46 43

[contact@blueye.no](mailto:contact@blueye.no)

[www.blueyerobotics.com](http://www.blueyerobotics.com)

**Boston Engineering Corp.****AUV**

300 Bear Hill Rd.  
Waltham, MA 02451 USA  
📞 +1 (781) 466-8010  
[info@boston-engineering.com](mailto:info@boston-engineering.com)  
[www.boston-engineering.com](http://www.boston-engineering.com)

**Boxfish Research Ltd.****Observation ROV with Payload Option**

234A Orakei Road, Remuera  
Auckland, New Zealand  
📞 +64 9 600 1910  
[info@boxfish.nz](mailto:info@boxfish.nz)  
[www.boxfish.nz](http://www.boxfish.nz)

**CADDEN****USV**

France  
[www.cadden.fr/en](http://www.cadden.fr/en)

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B109-9000 Bill Fox Way  
Burnaby/BC/ V5J 5J3 Canada  
✉ Adrian Woodroffe  
📞 +1 (604) 540-5530  
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**Centurion Subsea Services****Work Class, Towed & Crawling**

Aleron House, Unit B,  
Kintore Business Park AB51  
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📞 +44 1467 424060  
[info@centurionsubseaservices.com](mailto:info@centurionsubseaservices.com)  
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**CEE Hydrosystems****USV**

701 Palomar Airport Road, Ste. 300  
Carlsbad, CA 92011 USA  
📞 +1 (760) 492 4511  
[sales@ceehydrosystems.com](mailto:sales@ceehydrosystems.com)  
[www.ceehydrosystems.com](http://www.ceehydrosystems.com)

**CHCNAV****USV**

599 Gaojing Road, Building D  
201702 Shanghai China  
📞 +86 21 5426 0273  
[marketing@chcnav.com](mailto:marketing@chcnav.com)  
[www.chcnav.com](http://www.chcnav.com)

**Copenhagen Subsea A/S****Observation ROV with Payload Option**

Troljevej 2  
Hellerup Denmark  
✉ Allan Nygård Bertelsen  
📞 +45 (0) 70221162  
[sales@copenhagensubsea.com](mailto:sales@copenhagensubsea.com)  
[www.copenhagensubsea.com](http://www.copenhagensubsea.com)

**Deep Ocean Engineering, Inc.****Observation ROV, Observation ROV with Payload Options, Workclass ROV, USV**

2403 Qume Dr.  
San Jose, CA USA  
✉ Sales  
📞 +1 (408) 436-1102

[sales@deeponcean.com](mailto:sales@deeponcean.com)  
[www.deeponcean.com](http://www.deeponcean.com)

**Deepinfar Ocean Technology****Observation ROV**

TEDA Hi-Tech Industrial Park, No.  
45, Muning Road, Binhai New Area,  
Tianjin

✉ Sales  
📞 400-806-2688  
[info@deepinfar.com](mailto:info@deepinfar.com)  
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**Deep Trekker Inc.****Observation ROV, Observation ROV with Payload Option, Towed & Bottom Crawling Vehicles**

155 Washburn Drive  
Kitchener, Canada  
✉ Sales  
📞 +1 (519) 342-3177  
[sales@deeptrekker.com](mailto:sales@deeptrekker.com)  
[www.deeptrekker.com](http://www.deeptrekker.com)

**Del Mar Oceanographic****Gliders & Profilers**

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✉ Chris Kontoes  
📞 +1 (858) 524-3300  
[chris@delmarocean.com](mailto:chris@delmarocean.com)  
[www.delmarocean.com](http://www.delmarocean.com)

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61 Boulevard des Dames  
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[seasam@delair.aero](mailto:seasam@delair.aero)  
<https://seasam.notiloplus.com/>

**DEMCON | Unmanned Systems****USV**

Delftechpark 23  
2628 XJ Delft The Netherlands  
📞 +31 88 115 20 00  
[unmanned@demcon.com](mailto:unmanned@demcon.com)  
<https://demcon-unmanned.nl/>

**DOER Marine Operations****Observation ROV with Payload Option, Work Class ROV**

650 W Tower Ave  
Alameda, CA 94501 USA  
📞 15105309388  
[info@doermarine.com](mailto:info@doermarine.com)  
[www.doermarine.com](http://www.doermarine.com)

**DotOcean****USV, Towed & Bottom Crawling Vehicles**

Gistelse Steenweg 294 box 205  
8200 Sint-Andries (Brugge) Belgium  
📞 +32 50 68 30 54  
[sales@dotocean.eu](mailto:sales@dotocean.eu)  
[www.dotocean.eu](http://www.dotocean.eu)

**DWTEK Co., LTD****Observation, ROV with Payload Option**

No.22 Dong Ying Rd., East District  
Taichung City 401 Taiwan  
📞 +886 435024890  
[info@dwtek.com.tw](mailto:info@dwtek.com.tw)  
[www.dwtekmarine.com](http://www.dwtekmarine.com)

**Eddyfi Technologies**  
**Towed & Bottom Crawling Vehicles**  
812 W 13th Street  
Deer Park, TX 77536-3166 USA  
 Sales  
 +1 281-542-3292  
<https://www.eddyfi.com/>

**Edgelab Srl**  
**AUV**  
c/o CSCA, Via degli Altiforni, 3  
57037 Portoferraio (LI) Italy  
 +39-0187 1822943  
[edgelab@edgelab.eu](mailto:edgelab@edgelab.eu)  
[www.edgelab.eu](http://www.edgelab.eu)

**EdgeTech**  
**Towed & Bottom Crawling Vehicle**  
4 Little Brook Rd  
West Wareham, MA 02576 USA  
 Sales  
 +1 (508) 291-0057  
[info@edgetech.com](mailto:info@edgetech.com)  
[www.edgetech.com](http://www.edgetech.com)

**EIVA a/s**  
**Towed & Bottom Crawling Vehicles**  
Niels Bohrs Vej 17  
8660 Skanderborg Denmark  
 +45 2048 7737  
[eiva@eiva.com](mailto:eiva@eiva.com)  
[www.eiva.com](http://www.eiva.com)

**Emma Technologies GmbH**  
**USV**  
Felmer Strasse 4b  
24251 Osdorf/ Kiel Germany  
 +49 431 2609370  
[ask-emma@emma-technologies.com](mailto:ask-emma@emma-technologies.com)  
[www.emma-technologies.com](http://www.emma-technologies.com)

**EPRONS ROV Ltd.**  
**Observation ROV**  
11 Audupes Street  
Riga, LV1030 Latvia  
[info@eprons.eu](mailto:info@eprons.eu)  
[www.eprons.eu](http://www.eprons.eu)

**EvoLogics GmbH**  
**AUV, USV**  
Wagner-Régeny-Straße  
12489 Berlin, Germany  
 +49 30 4679 862-0  
[sales@evologics.de](mailto:sales@evologics.de)  
[www.evologics.de](http://www.evologics.de)

**Exail**  
**Observation ROV, Observation ROV with Payload Option, Workclass ROV, Towed Bottom Crawling**  
France  
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[sales.robatics@exail.com](mailto:sales.robatics@exail.com)  
[www.exail.com](http://www.exail.com)

**Exocetus Autonomous Systems**  
**Glider**  
7 Laser Lane  
Wallingford, CT 06492 USA  
 Joe Turner  
 +1 (860) 512-7260 Ext. 3  
[jturner@exocetussystems.com](mailto:jturner@exocetussystems.com)  
<https://www.exocetus.co/>

**Forum Subsea Technologies**  
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Suite 300, Houston, TX 77064, USA  
 +44 (0) 713 329 8230  
[Subsea.Sales@f-e-t.com](mailto:Subsea.Sales@f-e-t.com)  
<https://f-e-t.com/subsea/>

**Forssea Robotics**  
**Observation ROV with Payload Option**  
France  
 Gautier Dreyfus  
 +44 (0) 1751 431751  
[gdreyfus@forssea-robotics.fr](mailto:gdreyfus@forssea-robotics.fr)  
[www.forssea-robotics.fr](http://www.forssea-robotics.fr)

**Fugro**  
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Fugro, Americas  
6100 Hillcroft Avenue,  
Houston, TX 77081 USA  
 Hugh Parker  
 +1 713 369 5600  
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Barcelona, Spain  
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 +34637858008  
[j.vinola@gpaseabots.com](mailto:j.vinola@gpaseabots.com)  
[www.gpaseabots.com](http://www.gpaseabots.com)

**Graal Tech s.r.l**

**AUV, USV**  
Via Jacopo Ruffini 9R  
16128 Genova Italy  
 +39 010 8597680  
[info@graaltech.it](mailto:info@graaltech.it)  
[www.graaltech.it](http://www.graaltech.it)

**H2O-Robotics**

**USV**  
Unska 3  
10 000 Zagreb  
Croatia  
 Sales  
 +385 91 3105 480  
[marin@h2o-robotics.com](mailto:marin@h2o-robotics.com)  
[www.h2o-robotics.com](http://www.h2o-robotics.com)

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Unit 335, 3/F, My Loft 9 Hoi Wing Road, Tuen Mun New Territories Hong Kong  
 Sales  
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[en.hi-target.com.cn](http://en.hi-target.com.cn)

**HR Wallingford**  
**Observation ROV**

Howbery Park, Wallingford  
Oxfordshire, OX10 8BA  
United Kingdom  
 +44 1491 822899  
[info@hrwallingford.com](mailto:info@hrwallingford.com)  
<https://equipt.hrwallingford.com/>

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www.hullwiper.co/why-hullwiper

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4101 Washington Ave.  
Newport News, VA 23607 USA  
✉️ Sales  
📞 +1 508-563-6565  
uxs.customerservice@hii-tsd.com  
https://hii.com/

**Hydromea**  
**Observation ROV, Observation ROV with Payload**  
Avenue de Longemalle 11  
Renens, Switzerland  
✉️ Sales  
sales@hydromea.com  
www.hydromea.com

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Green Valley, AZ USA  
✉️ Alexander Bahr  
📞 +1 520-203-8351  
info@hydronalix.com  
www.hydronalix.com

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Unit 7 Bishops Court Gardens  
Bishops Court Lane  
Clyst St. Mary UK  
📞 +44 (0) 7800 799 260  
info@hydro-surv.com  
www.hydro-surv.com

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✉️ Sales  
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info@impossiblemetals.com  
https://impossiblemetals.com/

**In Nature Robotics Ltd.**  
**USV**  
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Hanwell, Canada  
✉️ Murray Lowery-Simpson  
📞 +1 (506) 457-8365  
murray@innaturerobotics.com  
www.innaturerobotics.com

**Independent Robotics**  
**AUV**  
Montreal, QC Canada  
📞 +1 (646) 789-4022  
info@independenterobotics.com  
https://www.independenterobotics.com/

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📞 604-942-5223  
info@ise.bc.ca  
www.ise.bc.ca

**Israel Aerospace Industries**  
**AUV**  
Ben Gurion International Airport  
70100 Israel  
iai-communications@iai.co.il  
https://www.iai.co.il/

**IQUA Robotics SL**  
**AUV**  
Pic de Peguera 11  
Girona 17003, Spain  
✉️ Joseta Roca  
📞 +34972183311  
info@iquarobotics.com  
www.iuarobotics.com

**Jaia Robotics**  
**AUV**  
22 Burnside St.  
Bristol, RI 02809 USA  
✉️ Ian Estaphan Owen  
📞 1 (401) 214-9232  
ian@jaia.tech  
www.jaia.tech

**JW Fishers Mfg. Inc.**  
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MA 02718 USA  
✉️ Brian Fisher  
📞 (800) 822-4744  
info@jwfishers.com  
www.jwfishers.com

**Kongsberg Maritime**  
**AUV, USV**  
Headquarters, Kirkegårdsvingen 45  
NO-3616 Kongsberg Norway  
📞 +47 32 28 50 00  
km.sales@kongsberg.com  
www.km.kongsberg.com

**Kraken Robotics**  
**Towed & Crawling**  
Canada  
✉️ Sales  
post@kystdesign.no  
www.kystdesign.no

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EIKESKOGVEGEN 80  
5570 AKSDAL Norway  
✉️ Åge Holsbrekken  
sales@krakenrobotics.com  
krakenrobotics.com

**L3Harris**  
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Corporate Headquarters  
1025 W. NASA Boulevard,  
Melbourne, FL, 32919 USA  
www.L3Harris.com

**Liquid Robotics - A Boeing Company**  
**USV**  
1329 Moffett Park Drive  
Sunnyvale USA  
✉️ Sales  
📞 +1 408 636 4200  
sales@liquid-robotics.com  
www.liquid-robotics.com

### Lockheed Martin

**AUV**

6801 Rockledge Drive  
Bethesda, MD 20817 USA

 **Media**

 **(301) 897-6000**

[media.relations@lmco.com](mailto:media.relations@lmco.com)  
<https://www.lockheedmartin.com/en-us/index.html>

### MacArtney

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Gł. Guldagervej 48  
DK-6710 Esbjerg V  
Denmark

 **Sales**

 **+4576132000**

[sales@macartney.com](mailto:sales@macartney.com)  
[www.macartney.com](http://www.macartney.com)

### Marine Advanced Research

**USV**

1301 South 46th St., Building 300A  
Richmond, CA 94804 USA

 **+1 (510) 232-1685**

[info@wam-v.com](mailto:info@wam-v.com)  
[www.wam-v.com](http://www.wam-v.com)

### Marine Imaging Technologies

**Observation ROV with Payload Option**

P.O. Box 1997

North Falmouth, MA 02556 USA

 **David Ullman**

 **(617) 394-1188**

[Info@marineimagingtech.com](mailto:Info@marineimagingtech.com)  
[www.marineimagingtech.com/rov](http://www.marineimagingtech.com/rov)

### MarineNav

**Observation ROV**

Panmure Island Road  
Panmure Island, PE COA 1R0

Canada  **Sales**

 **(617) 394-1188**

[sales@marinenav.ca](mailto:sales@marinenav.ca)  
[www.marinennav.ca](http://www.marinennav.ca)

### Mariner Underwater Electronics

**Observation ROV with Payload Option, Work Class ROV**

20-22 Pilis str.

Piraeus Greece

 **+30 210 4100656 -57**

[marhge@otenet.gr](mailto:marhge@otenet.gr)  
[www.mariner.gr](http://www.mariner.gr)

### MarineTech SAS

**USV**

ZAC La Millonne, 64 rue de la garde  
83140 Six Fours les Plages, France

 **Magali Mouries**

 **+33 (0) 9 54 82 10 52**

[contact@marinetech.fr](mailto:contact@marinetech.fr)  
[www.en.marinetech.fr/Marine-survey-USV](http://www.en.marinetech.fr/Marine-survey-USV)

### Notilo Plus

**Observation ROV with Payload Option**

Le Castel Héritage, 61 Boulevard des Dames

13002 MARSEILLE France

 **+33 667531704**

[contact@notiloplus.com](mailto:contact@notiloplus.com)  
[www.notiloplus.com](http://www.notiloplus.com)

### Novumare

**USV**

Aydintepe Mah. Sahil Bulvari Cad.  
No:126

Denizciler Ticaret Merkezi 57/B  
Turkey

 **+0541 891 7401**

[info@novumare.com.tr](mailto:info@novumare.com.tr)  
[www.novumare.com.tr](http://www.novumare.com.tr)

### Ocean Aero, Inc.

**USV, AUV**

50 East Pier Rd

Gulfport USA

 **Keith Blystone**

 **+1 (312) 315-6120**

[info@oceanaero.com](mailto:info@oceanaero.com)  
[www.oceanaero.com](http://www.oceanaero.com)

### Oceanalpha

**USV**

RM 702,7/F SPA Centre, NO.53-55

Lockhart Road, Wan Chai

Hong Kong

 **Sales**

[Sales@oceanalpha.com](mailto:Sales@oceanalpha.com)  
[www.oceanalpha.com](http://www.oceanalpha.com)

### Oceanbotics

**Observation ROV with Payload Option**

15375 Barranca Parkway  
Building I-112

Irvine, CA 92618 USA

 **Sales**

 **(949) 656 8038**

[wprice@oceanbotics.com](mailto:wprice@oceanbotics.com)  
[www.oceanbotics.com](http://www.oceanbotics.com)

### MARTAC

**USV**

N. John Rodes Blvd., Ste. 103  
Melbourne, FL, 32934 USA

 **+1 (321) 292-9443**

[info@martacsystems.com](mailto:info@martacsystems.com)  
[www.martacsystems.com](http://www.martacsystems.com)

### Nauticus Robotics

**AUV**

17146 Feather Craft Ln #450

Webster, TX 77598 USA

 **(281) 942-9069**

[https://nauticusrobotics.com/](http://nauticusrobotics.com/)

### Navocean Inc.

**USV**

SEATTLE USA

 **Stuart Lochner**

 **+1 (206) 849-9005**

[sales@navocean.com](mailto:sales@navocean.com)

[www.navocean.com](http://www.navocean.com)

**Oceaneering International, Inc.**  
**Observation ROV with Payload Options, Work Class ROV, AUV**  
 11911 FM 529  
 Houston, TX USA  
 Sales  
 +1 (713) 329-4500  
[rov-services@oceaneering.com](mailto:rov-services@oceaneering.com)  
[Sales@oceaneering.com](mailto:Sales@oceaneering.com)  
[www.oceaneering.com](http://www.oceaneering.com)

**Oceanscan-MST LDA**  
**AUV**  
 Av. Liberdade, Polo Mar UPTec  
 4450-718 Leça da Palmeira  
 Matosinhos Portugal  
 +351 220 301 576  
[info@oceanscan-mst.com](mailto:info@oceanscan-mst.com)  
[www.oceanscan-mst.com](http://www.oceanscan-mst.com)

**Offshore Sensing AS**  
**USV**  
 Fantoftvegen 38  
 5072 Bergen Norway  
 David Peddie  
 +91652190  
[info@sailbuoy.no](mailto:info@sailbuoy.no)  
[www.sailbuoy.no](http://www.sailbuoy.no)

**Open Ocean Robotics**  
**USV**  
 4476 Markham Street, #2L  
 Victoria, BC, V8Z 7X8 Canada  
 David Peddie  
 +1 (250) 580-2628  
[info@openoceanrobotics.com](mailto:info@openoceanrobotics.com)  
[www.openoceanrobotics.com](http://www.openoceanrobotics.com)

**Oscius**  
**USV**  
 Werkhorst 38  
 7944 AV Mappel  
 Netherlands  
 Sales  
 +31 6 82732501  
[support@oscius.com](mailto:support@oscius.com)  
<https://oscius.com/>

**Outland Technology**  
**Observation ROV, Observation ROV with Payload Option**  
 38190 Commercial Court  
 Slidell, LA 70458 USA  
 +1 (985) 847-1104  
[sales@outlandtech.com](mailto:sales@outlandtech.com)  
[www.outlandtech.com](http://www.outlandtech.com)

**Pliant Energy Systems**  
**Observation ROV**  
 63 Flushing Ave, Bldg.280 Ste.614  
 Brooklyn, NY 11205 USA  
 Pietro Filardo  
 +1 (646) 327-7401  
[filardo@pliantenergy.com](mailto:filardo@pliantenergy.com)  
[www.pliantenergy.com](http://www.pliantenergy.com)

**Poseidon Robotics, LLC**  
**Observation ROV with Payload Option**  
 813 West Elliot Road, Suite 4  
 Chandler, Arizona 85225 USA  
 Peter Schubert  
 +1 480 558 6499  
[Peter@poseidonrov.com](mailto:Peter@poseidonrov.com)  
[www.poseidonrov.com](http://www.poseidonrov.com)

**PowerDocks LLC**  
**USV**  
 151 Martine Street, Suite 107  
 Fall River MA USA  
 Anthony Baro  
 +1 (401) 489-2273  
[abaro@power-docks.com](mailto:abaro@power-docks.com)  
[www.power-docks.com](http://www.power-docks.com)

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[www.qinetiq-na.com](http://www.qinetiq-na.com)

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[operations.norway@remotion.no](mailto:operations.norway@remotion.no)  
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 Beijing, China  
 +400-6288198  
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[www.roboosea.org](http://www.roboosea.org)

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 3 Rue Vert Castel  
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[www.robotics-industry.com](http://www.robotics-industry.com)

**Rovotics**  
**Work Class ROV**  
 United Arab Emirates  
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 56850 CAUDAN  
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[enquiries@rtsys.fr](mailto:enquiries@rtsys.fr)  
[www.rtsys.eu/en/](http://www.rtsys.eu/en/)

**Saab Seaye**  
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 +44 (0) 1489898000  
[solutions@saabseaye.com](mailto:solutions@saabseaye.com)  
[www.seaeye.com](http://www.seaeye.com)

**Saildrone**  
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 1050 W Tower Ave  
 Alameda, CA 94501 USA  
 Matthew Woody  
 +1 (415) 670 9700  
[sales@saildrone.com](mailto:sales@saildrone.com)  
<https://www.saildrone.com/>

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### SEA-KIT International

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Blackwater House, Woodrolfe Road,  
Tollesbury, Essex, CM9 8SE UK  
 James Hopper  
 +44 (0) 1206 625180  
[j.hopper@sea-kit.com](mailto:j.hopper@sea-kit.com)  
[www.sea-kit.com](http://www.sea-kit.com)

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Frontstraat 4b  
Uden Netherlands  
 Frank Relou  
 +31628841200  
[frelou@sea-machines.com](mailto:frelou@sea-machines.com)  
<https://sea-machines.com/>

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 +1 (250) 729-8899  
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[www.seamor.com](http://www.seamor.com)

### SeaRobotics Corporation

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### SRS | Strategic Robotic Systems

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San Diego, CA 92121 USA  
 Nick Devine  
 +1-619-335-5983  
[info@srsfusion.com](mailto:info@srsfusion.com)  
[www.srsfusion.com](http://www.srsfusion.com)

### Stonex

#### USV

Viale dell'Industria 53  
20037 Paderno Dugnano (MI)  
Italy  
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[www.stonex.it](http://www.stonex.it)

### SubC Imaging

#### Towed & Bottom Crawling Vehicle

327 Memorial Drive  
Clarenville, Newfoundland, A5A 1R8  
Canada  
 Ian McMillan  
 +1 (709) 702-0395  
[ian.mcmillan@subcimaging.com](mailto:ian.mcmillan@subcimaging.com)  
<https://www.subcimaging.com/>

### Submersible Systems Inc.

#### Observation ROV with Payload Option, Work Class ROV

P.O. Box 1843  
333 Progresso Road  
Patterson, LA 70392 USA  
 +1 (985) 395-0999  
[wolfgang@ssirovs.com](mailto:wolfgang@ssirovs.com)  
[www.ssirovs.com](http://www.ssirovs.com)

**SubSeaSail, LLC****USV**

4420 Hotel Circle Court Suite 215  
San Diego USA  
 **Michael Jones**  
 +1 (619) 253-8761  
[mbjones@subseasail.com](mailto:mbjones@subseasail.com)  
[www.subseasail.com](http://www.subseasail.com)

**Subsea Tech - Marine and Underwater Technologies****USV, Observation ROV, Observation ROV with Payload Option, Towed & Bottom Crawling Vehicle**

167 plage de l'Estaque  
13016 Marseille France  
 **Sales**  
 +33 491517671  
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[www.subsea-tech.com](http://www.subsea-tech.com)

**TechnipFMC Schilling Robotics****Work Class ROV**

201 Cousteau Place  
Davis, CA 95618 USA  
 **Hamish Stewart**  
 +44 784 156 8023  
 **Karen Matherne**  
 +1 530 747 2741  
[schilling.sales@technipfmc.com](mailto:schilling.sales@technipfmc.com)  
<https://www.technipfmc.com/en/what-we-do/subsea/robotics/>

**Teledyne Gavia****AUV**

Vesturvör 29  
200 Kópavogur Iceland  
 **Sales**  
 +354 511 2990  
[gavia\\_sales@teledyne.com](mailto:gavia_sales@teledyne.com)  
[www.teledynemarine.com](http://www.teledynemarine.com)

**Teledyne Oceanscience****USV**

49 Edgerton Drive  
North Falmouth, MA 02556  
USA  
 **Sales**  
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[www.teledynemarine.com/oceanscience](http://www.teledynemarine.com/oceanscience)

**Teledyne SeaBotix****Observation ROV with Payload Option**

49 Edgerton Drive  
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USA  
 **Sales**  
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[SeaBotix\\_Inquiries@teledyne.com](mailto:SeaBotix_Inquiries@teledyne.com)  
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**Teledyne Webb Research****Glider**

49 Edgerton Drive  
North Falmouth MA 02556 USA  
 **Chris DeCollibus**  
 +1 (508) 563-1000  
[webbresearch@teledyne.com](mailto:webbresearch@teledyne.com)  
<https://www.teledynemarine.com/webb-research>

**Thyssen Krupp****Observation ROV**

thyssenkrupp Allee 1  
45143 Essen  
Essen, Germany  
 **Sales**  
 +49 201 844 0  
[info@thyssenkrupp.com](mailto:info@thyssenkrupp.com)  
<https://www.thyssenkrupp.com/en/home>

**Underwater Robotics Ltd.****Observation ROV**

36 Nakhimovskiy prospect  
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 +7 499 1292045  
[gnom@gnom-rov.com](mailto:gnom@gnom-rov.com)  
<https://gnomrov.com/>

**VideoRay LLC****Observation ROV, Observation ROV with Payload Option**

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 +1 (610) 458-3000  
[sales@videoray.com](mailto:sales@videoray.com)  
[www.videoray.com](http://www.videoray.com)

**XOcean****USV**

XOCEAN, Greenore Co.  
Louth, IA91 E765 Ireland  
 +353 42 9419200  
[info@xocean.com](mailto:info@xocean.com)  
[www.xocean.com](http://www.xocean.com)

**YSI Integrated Systems & Services****AUV, USV**

1725 Brannum Lane  
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 +1 (937) 688-4255  
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Garreg Lwyd  
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Clwyd LL16 4PW Scotland  
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<https://www.zelim.co/>



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Established in 1954, BIRNS is a global leader in the design and manufacturing of high-performance connectors, penetrators, and cable assemblies for deep ocean use. BIRNS solutions are found worldwide on submarines and submersibles, diving bells, and decompression chambers; ROVs, AUVs, and UUVs; and on everything from massive manned systems to photonics masts and intricate towed arrays.

The BIRNS Millennium™ series is a high performance, high density dry-mate interconnect range suitable for deep submergence applications to 6 km depth. BIRNS Millennium cable assemblies provide quantifiably superior performance characteristics: faster data transfer rates and greater signal bandwidth, lower optical insertion loss, greater depth capability, less RF loss, and better VSWR. This has been achieved through meticulous and innovative engineering and rigorous testing, and includes a range of industry-leading design features. The result is a powerful, robust subsea connector series providing the highest performance field-proven interconnect solutions on the market.

## GIGABIT SPEED DATA TRANSFER

BIRNS has met the uncrewed industry's need for sophisticated connectivity solutions with



» BIRNS 3O-1F3 connector pair is qualified to 6 km open face at 2°C with insertion losses of 0.1dB. (Image credit: Birns)

immense real-time data capabilities, providing cable assemblies with data transfer rates 9.4+/- 0.1 Gigabits per second (Gb/s). We developed exclusive deep submergence cable constructed for Cat 8.2 use, and performance testing proved that data consistently transmitted at this rate over the entire range of pressures from 0 to 8700 PSI/600 bar. Several sizes and pin configurations are available with data transfer rates of up to 9.4+/- 0.1 Gb/s at 6000 m: 3G-10 (Ethernet); 3M-13, 3M-16, and 3O-17 (Ethernet and Power).

## RF CAPABILITIES

Today's sophisticated autonomous and remotely operated systems frequently utilize coax connectivity for GPS-frequency, HD video and telemetry applications. BIRNS Millennium RF connectors are the most advanced and best-performing units on the market, with proprietary RF technology providing low insertion loss, high frequency capability, open face pressure resistance, and 50Ω, and 75Ω configurations.

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## OPTICAL CAPABILITIES

Frequently, greater bandwidth over longer distances—yet with a smaller hull penetration—is required. BIRNS Millennium optical and EO configurations deliver the ultimate in high-performance data transmission, with field-proven designs qualified in cold-water high pressure testing. In fact, BIRNS introduced a remarkable precision testing capability for



» Rigorous testing shows data transfer rate of 9.48 Gb/sec over 20m (65 feet) of cable with five inline mating pairs. (Image credit: Birns)

deep submergence connectors and cable assemblies—an extreme low temperature, extreme depth testing system. The test system successfully allows 48 hour+ continuous testing of connectors and cable assemblies at 6 km in a controlled 2°C (±1°C) environment. It was initially developed in 2019 to meet customer requirements for a new ultra-depth rated AUV designed for survey and inspection. BIRNS developed a new 6 km-rated hybrid electro-optical pin configuration for the project, the 3O-1F3, which features the company's unique miniature 1.25 mm optical ferrule, with insertion loss of 0.1dB.

Since communication is mission critical, today's uncrewed subsea systems require real time, reliable and field-proven solutions for signal and data transfer. BIRNS has a long legacy of contributions that have helped improve communication and exploration at depth and is proud to continue to enhance new solutions that create safer, more powerfully efficient system operation.

For more information, visit: [www.birns.com](http://www.birns.com).



» BIRNS 1V/75Ω (Left), 1B (center) and 1V/50Ω (Right) connectors. (Image credit: Birns)

**ON&T**

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**+832.399.5000**

[florence.kosmala@acteon.com](mailto:florence.kosmala@acteon.com)

[www.acteon.com](http://www.acteon.com)

Ferryside, Ferry Road

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[wh@sperre-as.com](mailto:wh@sperre-as.com)

<https://www.akvagroup.com/sperre/>

Telemark Teknologipark, Merdeveien 1  
N-3676 Notodden Norway

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[www.aqueossubsea.com](http://www.aqueossubsea.com)

[mwieneke@aqueossubsea.com](mailto:mwieneke@aqueossubsea.com)

418 Chapala Street, Suite E

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**+1 (512) 562-9000**

[www.asi-group.com](http://www.asi-group.com)

[dmichel@asi-group.com](mailto:dmichel@asi-group.com)

566 Arvin Ave

Stoney Creek ON, L8E 5P1 Canada

### Atlantas Marine Ltd.

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**Charlie Foll**

**+44.1935.426.000**

[www.atlantasmarine.com](http://www.atlantasmarine.com)

[crf@atlantasmarine.com](mailto:crf@atlantasmarine.com)

Atlantis House, Armoury Rd.

Yeovil, Somerset BA22 8RT UK

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[cecile@benthicsolutions.com](mailto:cecile@benthicsolutions.com)

Elanco Works Marsh Rd.

Hoveton, Norfolk NR12 8UH UK

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**+61.8.6102.2999**

<https://www.blueoceanmts.com/>

[rdsinsdale@blueoceanmonitoring.com](mailto:rdsinsdale@blueoceanmonitoring.com)

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[www.brone-survey.com](http://www.brone-survey.com)

[info@bronesurvey.com](mailto:info@bronesurvey.com)

Plot 162 Abonnema Cl,

Rumuogba Estate

Port Harcourt Nigeria

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**Gerald Caba**

**+65.6465.0498**

[www.cabaco.com](http://www.cabaco.com)

[admin@cabaco.com.sg](mailto:admin@cabaco.com.sg)

48 Toh Guan Rd E.

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brobert@cls.fr

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sregan@deptrekker.com

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+47.55.25.22.00

www.dofsubsea.com

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Bergen 5006, Norway

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Steven Saint Amour

+1 (401) 553-3041

www.eclipse.us.com

ssaintamour@eclipse.us.com

1997 Annapolis Exchange Parkway, Suite 300

Annapolis, MD 21401 USA

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C.D. Schempf, Jr

+1 (713) 775-7264

www.echo-offshore.net

schempfc@echo-offshore.net

36499 Perkins Rd.

Prairieville, LA 70769 USA

**Edgelab, Srl****AUVs**

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Lavinio Gualdesi

+3901871822943

www.edgelab.eu

lavinio.gualdesi@edgelab.com

Via Privata OTO, 10-

19136 , La Spezia Italy

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Oddgeir Ingvartsen

+1 (786) 454-4885

www.energysubsea.com

office@energysubsea.com

407 Lincoln Rd

Miami, FL 33139 USA

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Sales

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eqs@eqs-fze.com

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**FIELAX GmbH****ROVs**

Survey, Inspection, Observation, Data Collection

Sebastian Albrecht

+49 471.300150

https://www.fielax.de/en/

info@fielax.de

Schleusenstr. 14

D-27568 Bremerhaven, Germany

### Focus Technology Solutions

#### Observation ROV with Payload Option



Observation, Survey, Inspection, Intervention

Adam Chen

+0476373431

<https://focustechnology.com.au/>

asc@focustechnology.com.au  
7 Lerista Ct

Bibra lake  
Australia

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Brandon Broom

+1 (713) 346-3770

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bbroom@fugro.com  
6100 Hillcroft Ave.

Houston, TX 77081 USA

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Donghun Kim

+82 2.2068.3070

[www.geotechsystem.com](http://www.geotechsystem.com)

info@geotechsystems.com  
Seoul, 150-015 South Korea

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+1 (206) 623-0621

[www.gdiving.com](http://www.gdiving.com)

m.langden@gdiving.com

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Seattle, WA 98106 USA

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WA 98199 USA

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David Malak

+1 (248) 745-8456

[www.hibbardinshore.com](http://www.hibbardinshore.com)

dave.malak@hibbardinshore.com  
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Auburn Hills, MI 48326 USA

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Mauro Stasi

+390438841686

[www.irov.it](http://www.irov.it)

mauro.stasi@irov.it

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31015 Congeliano Treviso Italy

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Paolo Cattaneo

+65 6505.0900

[www.kreuzsubsea.com](http://www.kreuzsubsea.com)

enquiry@kreuzsubsea.com

10 Science Centre Rd. 01-12 Block 1  
609920 Singapore

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✉ Paul Unterweiser

<https://marinesimulation.com/>

info@marinesimulation.com

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✉ Magali Mouries

📞 +33 09.54.82.10.52

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✉ Matthew Kowalczyk

📞 +1 (778) 654-7781

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info@oceanfloorgeophysics.com  
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Burnaby, BC V5J 5J3 Canada**Ocean Tech Services, LLC****Towed Vehicles, ROVs**

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✉ Tim Axelsson

📞 +1 (609) 350-7455

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✉ Gunnar Pihl

📞 +49 178 4302346

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📞 401.489.2273

[www.power-docks.com/abaro@power-docks.com](http://www.power-docks.com/abaro@power-docks.com)  
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+34 616.604.778

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[www.rdsea.com](http://www.rdsea.com)

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+43.699.1899.9917

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+55 21.3638.5041

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333 Progresso Rd.

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+33 (0) 4. 91.51.76.71

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Marseille France

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36 Nakhimovskiy

117997 Moscow Russia

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15990 N. Barkers Landing, Suite 200

Houston, TX 77079 USA

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