

CONSTRUCTION SUPPORT

Vast industry knowhow combined with leading-edge technology, capturing and delivering the highest quality data to inform and de-risk your projects.



 **Beam**
Automating offshore wind

✉ sales@beam.global





Your trusted partner for offshore wind construction support solutions



The construction phase of your offshore wind farm demands the meticulous planning, design and installation of substantial infrastructure. This relies upon a skilled and experienced workforce, as well as specialised equipment, to ensure that once built, your wind farm can perform and produce for many years to come.

At Beam, we are specialists in enabling the companies that deploy heavy lift assets and cable lay support vessels to focus on their primary objective: the safe, high quality, and repeatable installation of critical infrastructure.

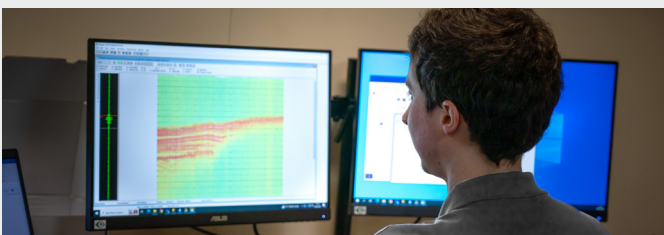
We provide trusted solutions from pre to post-construction, that safeguard and mitigate risk prior to structures being deployed subsea on to and into the seabed, through to ensuring that critical items such as scour, cable protection systems, and cables are installed in accordance with the required design criteria to ensure their continued trouble-free operation post-build. From site remediation tasks such as UXO identification and clearance, to array and export cable depth of burial verification, we are here to support your needs.

We pride ourselves in being a technology enabler, and we partner with world class technology developers and suppliers, so that our clients benefit from substantial time and cost savings whilst delivering the highest quality data and service across every phase of the offshore wind lifecycle.

We are committed to safety, innovation and delivery excellence, striving to exceed your expectations, and providing tailored solutions that ensure your projects are a success.

WHY BEAM?

- Our extensive experience across many wind farms worldwide, means we excel in challenging, shallow, tidal, and low visibility environments.
- Tailored solutions designed to dramatically increase efficiency across projects.
- Industry-leading technology deployment, from the assets we operate subsea, to the sensors we use to acquire data. Our reporting delivers an unrivalled level of perspective, accuracy and coverage.
- In-house project management and data processing by a team of industry experts.
- The latest remote and uncrewed survey technologies, along with all electric ROVs, enabling more efficient working across operations whilst lowering emissions.



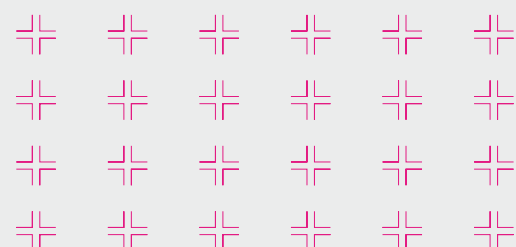
VESSELS



We have established longstanding and robust working relationships with vessel partners, allowing us to seamlessly integrate their DP2 vessels into our operations. Our collaborative partnerships have been instrumental in our ability to deliver efficient and reliable solutions to our clients in the renewable energy industry.

Our carefully selected fleet of DP2 vessels are equipped with advanced dynamic positioning capabilities, specifically tailored to meet the unique requirements of offshore wind projects, providing a stable platform for conducting operations in challenging marine environments.

Leveraging these advanced vessels and our substantial industry experience and knowhow, we reinforce our commitment to delivering a comprehensive range of top-tier solutions to our clients, supporting the success and sustainable growth of offshore wind projects across the globe.



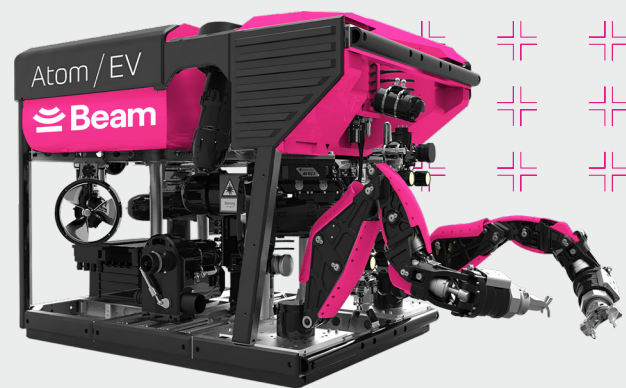
VERSATILE ROV FLEET

Our vast range of observation, inspection, and work-class remotely operated vehicles (ROVs) are equipped as standard with industry-leading SubSLAM X2 computer vision technology, providing unparalleled insights into the subsea environment in the highest 4k resolution, with simultaneous dense point cloud 3D model production and the ability to instantly perform accurate, contactless metrology tasks subsea.

ATOM EV

The ATOM EV is a compact, fully-electric and high performance work class ROV.

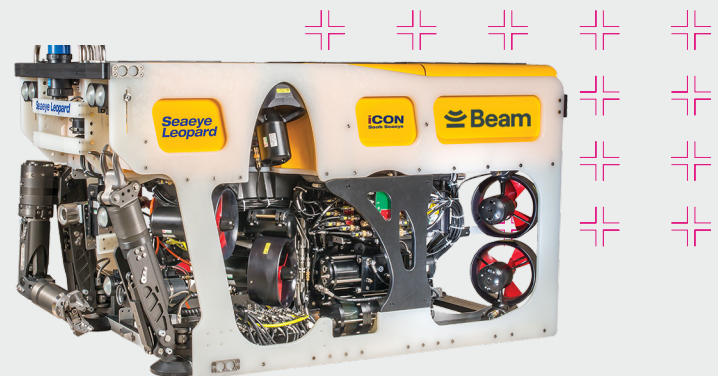
Offering exceptional levels of performance, the Atom EV is particularly suited to high current applications. It is capable of running a full suite of WROV tools, while modular construction and advanced diagnostics ease ownership. Advanced flight control improves quality of operation and reduces the time it takes to do a task. It also consumes less energy and reduces the risk of an oil spill in comparison to hydraulic WROVs, making your whole operation more cost-effective and environmentally friendly.



SEAEYE LEOPARD

The Seaeye Leopard is an exceptionally powerful electric work-class vehicle.

Its compact features and impressive vectored thrust enables greater workability and station keeping. The vehicle has a forward speed >3.5knots and sustains a payload of 200kg. It provides a multi-purpose work-class solution ideally suited to construction support, cable and pipe surveys, IRM activities in shallow water and strong current environments while being equally capable in deep 2000MSW environments.



MISSION SPECIALIST DEFENDER & PRO 5

The Mission Specialist Defender is designed for greater control, heavier payloads and demanding intervention. The Pro 5 offers a small footprint with optimal performance features.

The Mission Specialist Series vehicles are designed and built with flexibility in mind. The modular design enables easy maintenance and seamless integration with a variety of tools for a custom solution to your underwater challenges.



SOLUTIONS

UXO Identification, Clearance and Disposal

Unexploded ordnance (UXO) continue to pose a real risk to site developers, contractors, and asset owners, even long after periods of inactivity, with the potential to impede the safe and timely completion of projects.

Our comprehensive solution aims to mitigate these risks efficiently, in order to safeguard schedules and enable the arrival of heavy lift assets and cable lay support vessels on site. Our clients can be confident that the site has been prepared in advance, and the threat of UXO eliminated.

Combining our advanced range of ROVs, industry knowhow, and some of the most advanced sensors available on the market, we deliver valuable insights into the marine environment and work with our clients to develop a customised mitigation strategy to address the risks posed by UXO threats. Our goal is to ensure safe, timely removal of these hazards. We bring schedule efficiencies that ultimately reduce the time to completion and first power.

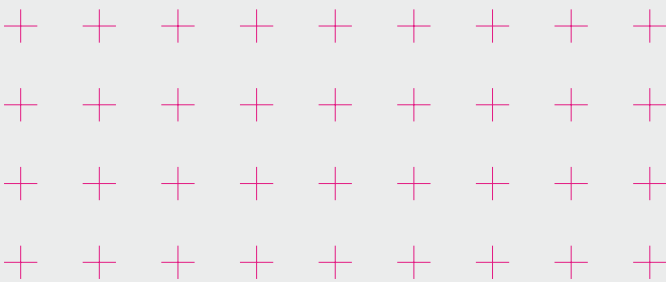
With extensive experience in both ferrous and non-ferrous target identification, we deploy technology that can significantly reduce the number of potential unexploded ordnance (pUXO). With this insight, and working closely with our geophysicists and assigned UXO consultants, removal from scope of up to 65% of false targets has been realised, significantly reducing the subsequent requirement to dredge and visually inspect.

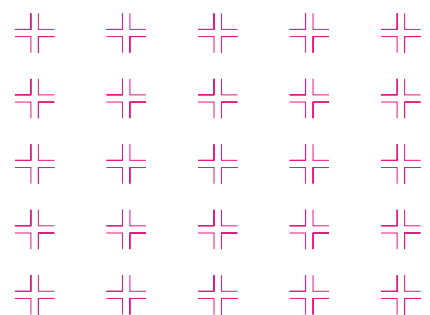
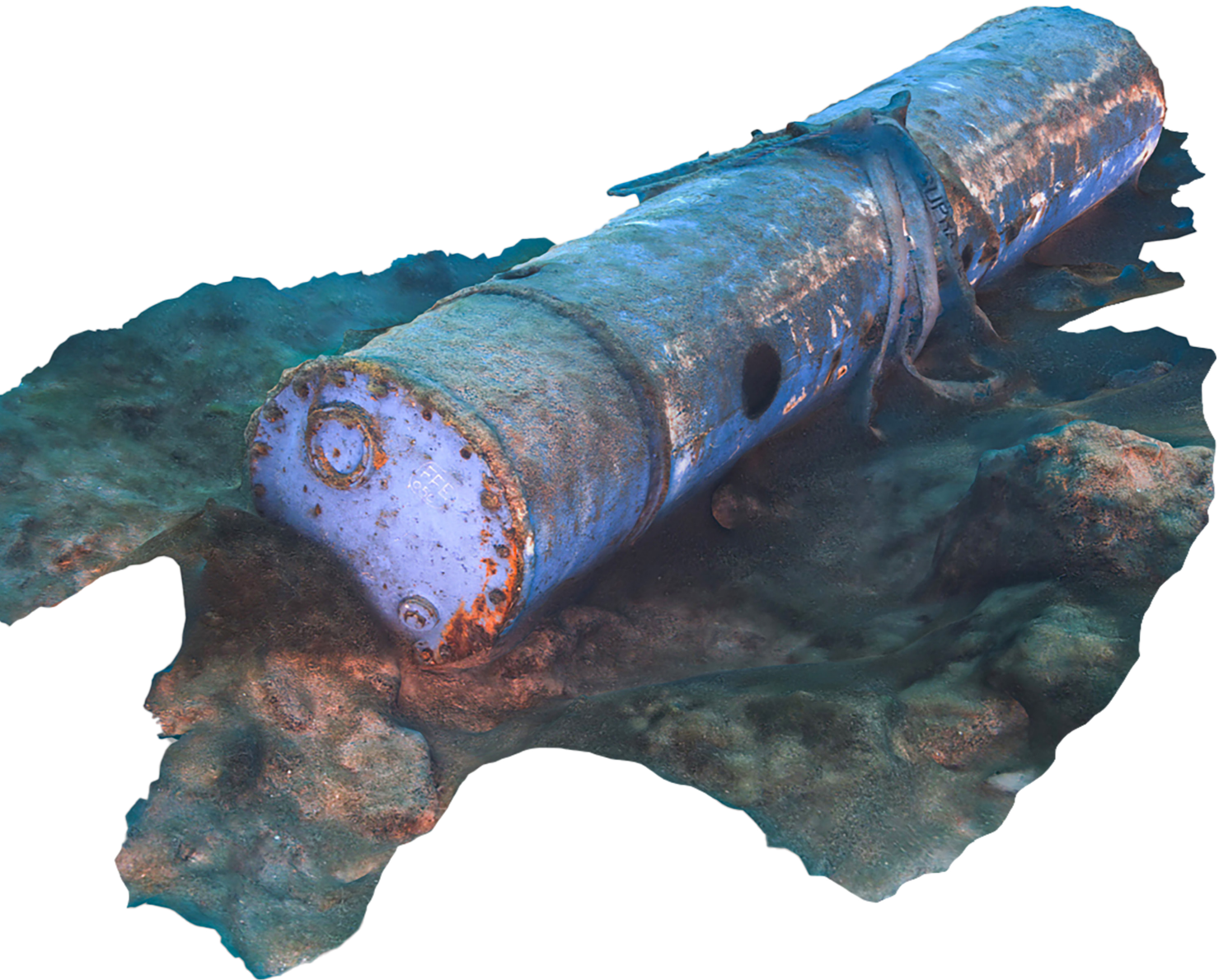
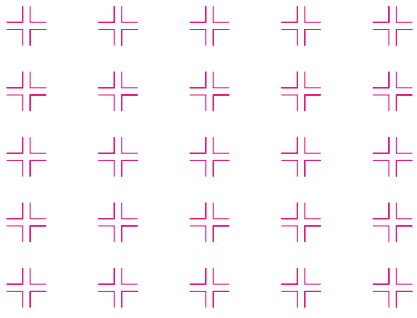
With hundreds, and often thousands, of potential targets to investigate and report on, keeping track of all of the data associated with each target can be an administrative burden and extremely time consuming. Our data platform, Vaantage, tracks and keeps tabs of every target, perfectly mapped in a GIS format. With a simple click on the site map on the object of interest, you have instant access to safely and securely stored records and reports to aid in closing out the master target list, which also supports in obtaining ALARP sign-off certification.

Providing a seamless solution, we work closely with trusted UXO disposal specialists, to ensure environmentally friendly, low order and safe UXO deflagration and disposal, minimising marine disturbance and noise that can be harmful to marine mammals.



- The most capable ROVs on the market for operating in extreme tidal sites; why stop at the top of spring tides?
- SubSLAM X2 offers the highest quality 4K video and simultaneous 3D live technology, with remote streaming to shore, enabling real-time information for quick assessment and collaboration on targets or items of interest.
- Data captured with the highest accuracy, offering a significantly reduced number of false-positive targets (up to 65%).
- Improved schedule efficiencies, by minimising the time and money spent on target investigations.
- Reduced HSE exposure, with lower noise emissions across projects.
- Data can be organised and stored in real-time for reporting and archiving, via our industry-leading data platform, Vaantage.





Pre and Post-lay Surveys

We specialise in conducting thorough pre-lay surveys, incorporating state-of-the-art geophysical and geotechnical equipment, accompanied by thorough video inspections. Our ultra high-resolution data enables our clients to assess seabed conditions accurately before cable installations take place.

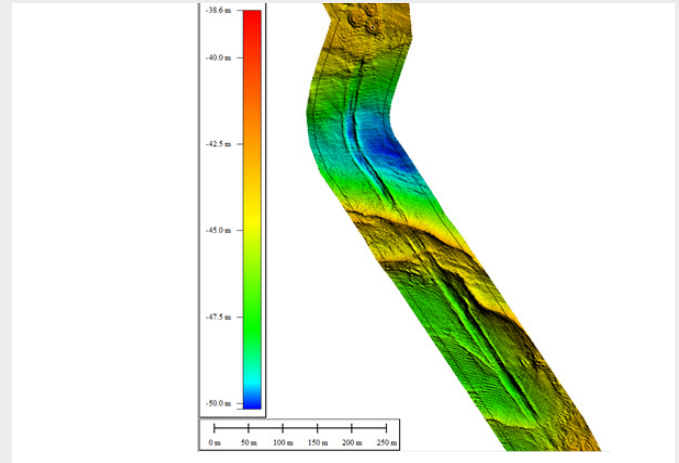
Following installation, we offer post-lay surveys to ascertain the exact position and ongoing condition of cables. By employing advanced surveying techniques and equipment, we deliver data insights that enable our clients to determine the precise location of cables and assess their overall health, ensuring their integrity and performance.

Our surveys utilise ultra high-definition video footage, high resolution bathymetric data, and accurate relative cable depth of burial assessments, using acoustic imaging systems.

From beneath the seabed to the bellmouth entry, we allow you to view your components in a real world, 3D digitised environment. Precise live subsea metrology allows free-

span to be measured, cable shapes to be plotted for overbend assessment, scour to be referenced for future trending, and cable protection systems to be verified as installed correctly.

At Beam, we recognise the criticality of these surveys in ensuring the successful deployment and ongoing operation of offshore wind farms. With our expertise and cutting-edge technology, we deliver comprehensive and reliable pre and post-lay survey solutions, helping our clients make informed decisions, and maintain the efficiency and reliability of their offshore wind installations.

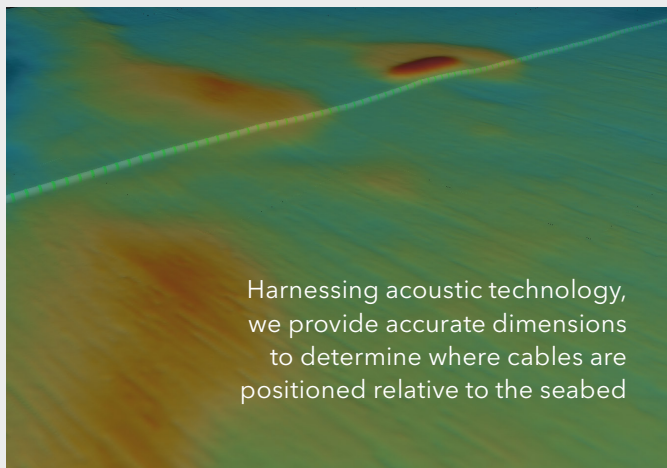
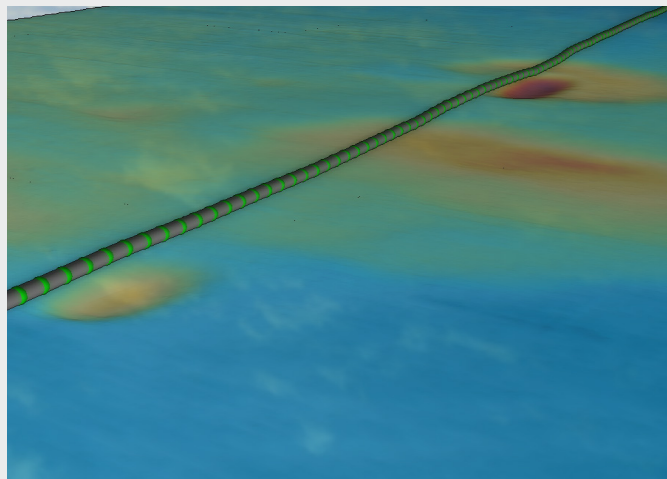


Cable Depth of Burial

Precise and accurate depth of burial (DoB) information is essential for cable security and for reducing cable maintenance costs.

We provide efficient cable depth of burial surveys, together with accurate plotting of route position logs, through the combined use of our positioning survey solutions. Our team is experienced in deploying an extensive suite of leading-edge tools, including acoustic sub-bottom imaging technology, and integrated cable and pipe tracking systems.

- Accurate and repeatable DoB data that identifies where remedial works are required.
- Precise location and size estimates of boulders and other objects adjacent or posing risk to cables.
- Assess the level of scour protection and depletion over time.
- Identify any areas of exposure or free-span.
- Assess the surrounding seabed to track changes to the environment.
- Surveys can be performed on energised cables, using acoustic technology.
- Critical component insight to ensure longevity of the intended design.



Harnessing acoustic technology, we provide accurate dimensions to determine where cables are positioned relative to the seabed

As-left Condition Reporting

As-left condition reporting plays a crucial role during the construction phase of offshore wind developments. We deliver unparalleled as-left surveys to document the as-built condition of subsea assets once construction is complete. These serve as a reference point for future operations, data trend analysis and maintenance, as well as for regulatory compliance.

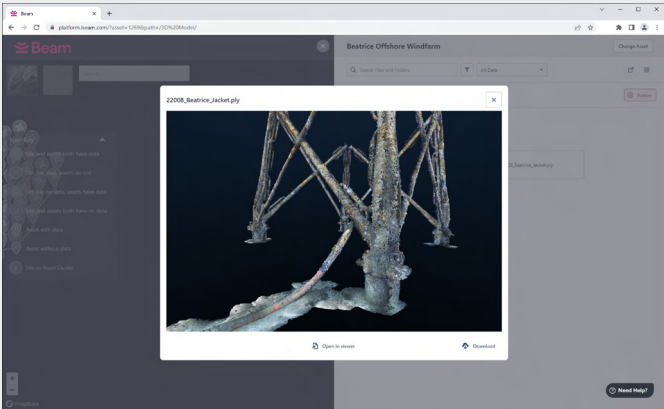
Offshore wind developments involve complex engineering and construction processes, and our as-left surveys ensure that the constructed infrastructure aligns with the original design plans and specifications, ready for hand over into operations.

Our in-house experts employ industry-leading techniques and technology, delivering the highest quality data and reporting. We meticulously capture the positions and dimensions of key elements such as scour, cathodic protection systems, anodes, cable protection systems, coating damage, and marine growth.

By comparing the as-built data against the initial design, project stakeholders can identify any discrepancies or deviations that may have occurred during construction. This information is invaluable for quality control, risk assessment, and ensuring compliance with regulatory requirements. It also aids in the resolution of any disputes between contractors, developers, and other parties involved in the project during handover, and into warranty for defect remedy.

Harnessing the power of SubSLAM X2 technology, our industry-leading 3D reconstructions are generated in real-time, whilst simultaneously capturing ultra high-definition 4K video footage. This provides a permanent snapshot in time, contributing to the long-term management of offshore wind farms.

The collected data serves as a baseline for future inspections, repairs, and maintenance activities. It enables asset owners to assess structural integrity, and to monitor changes over time such as marine growth type and volume, anode volume depletion, and change in scour. This trend analysis allows our clients to easily assess the performance of key components, and supports plans for upgrades or modifications.



- Provides a permanent snapshot in time of subsea assets.
- Successive inspections build up a history of the asset condition, to help identify changes and trends.
- Data can be easily revisited, re-inspected and re-evaluated multiple times, avoiding the need for another potential offshore campaign.
- Can feed into remedial work and future windfarm planning, without the need for re-survey, saving vessel days.
- Over 3 times faster to review a millimetric precision 3D digital twin generated using SubSLAM X2 technology compared to traditional video systems, minimising workload and personnel requirements.





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