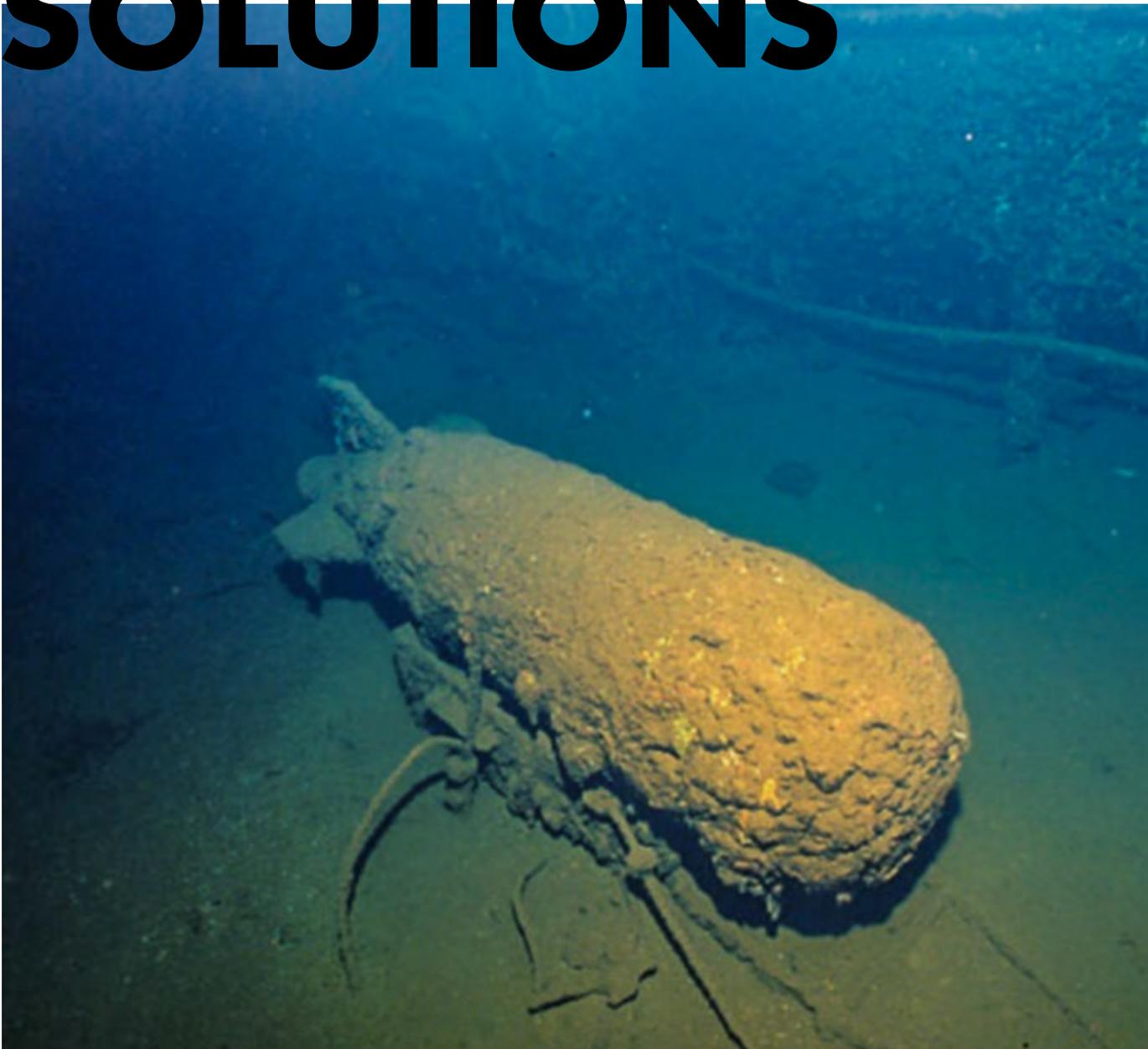


UNEXPLODED ORDNANCE SOLUTIONS



WHO WE ARE

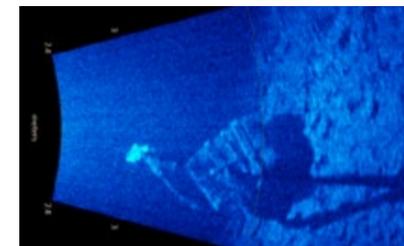


BOSKALIS HIRDES EOD SERVICES – THE ORDNANCE CLEARANCE SPECIALISTS

At Boskalis Hirdes we focus on creating safe conditions for the construction and operation of offshore developments. Established in 1978, we have in-depth knowledge and extensive experience in **seabed inspection as well as the clearance, disposal and destruction of unexploded ordnance.**

Our specialist teams are all from marine engineering or military backgrounds and will ensure the safe clearance of old ordnance, enabling uninterrupted execution of offshore construction projects. In providing a complete service, we utilise the expertise and resources of our parent company, Royal Boskalis Westminster NV, a leading global dredging and marine expert.

Boskalis Hirdes provide extensive expertise and a complete service from a single organisation, whether you are generating risk maps, clearing ordnance or carrying out offshore maintenance work.



Left
ROV CONTROL ROOM

ARIS-SONAR ILLUSTRATION
used when subsea vision is below 0m

T4 SCHILLING MANIPULATOR
from ROV with an artillery shell

ELECTROMAGNET
with an artillery shell

WHAT MAKES US SPECIAL

WHAT MAKES US SPECIAL



BOSKALIS HIRDES EOD SERVICES – AT A GLANCE

- A team of international, experienced marine engineers and ordnance disposal experts
- Safety is our top priority
- Pioneers in our field
- In-house research and equipment development to optimise safe work processes
- Over 1,000 vessels in various technical configurations available within the Group
- An extensive fleet of state-of-the-art technical equipment



UNEXPLODED ORDNANCE SOLUTIONS

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top
ROV on the carrier vessel

from left
RESEARCH PROJECT
Autonomous survey

EMERGENCY DRILL

OFFSHORE VESSELS

WHAT WE DO

FROM INITIAL ANALYSIS TO GIVING THE ALL CLEAR

We combine marine engineering knowledge with ordnance clearance and ship salvage expertise; this combination of capabilities allows us to adapt our services to specific project requirements. As an innovator in our industry, we not only develop new technologies for safe analysis and salvage, but also develop quality standards that guarantee our customers **excellent cost efficiency and safety**. We commit time to participating in committees and research groups that develop future proofed solutions for the marine engineering and ordnance clearance industries.

Our group's team of specialists and advanced equipment enables us to provide all services required for the safe clearance of ordnance. We manage all project stages from initial site assessment, using existing historical records, to technology-based analysis, clearance of construction areas and the issuing of the final ordnance free site certification.

We supply everything from a single source, either as a single service or in partnership with our clients other service providers.



WHAT WE DO

UNEXPLODED ORDNANCE SOLUTIONS



INVESTIGATION

Generating risk-maps based on historical data such as maps, war diaries, BSH documents etc.



SURVEY

Advanced seabed investigation using innovative methods, as well as in-house data analysis by our team of experts.



SALVAGE

If ammunition is found in a construction area, we carry out the salvage from seabed. When ammunition is unsafe for transport, we will arrange immediate safe disposal in situ.



BLASTING

If a salvage operation appears too risky, our certified explosives engineers will carry out a controlled detonation in accordance with relevant regulations.



DISPOSAL

We will remove and dispose of all salvaged ordnance in a controlled and responsible manner.



PROVIDING THE ALL CLEAR

After inspecting and clearing your construction site, we will issue an ordnance free site certificate for the area, guaranteeing our ordnance clearance work.

NO INJURIES NO ACCIDENTS



PERSONAL AND ENVIRONMENTAL SAFETY ARE OUR TOP PRIORITIES

There is a huge amount of historical ordnance in our seas and oceans, posing high risks to those working on and under water offshore. Our aim is to minimise these risks for your employees and for the environment. We work on the principle:

Equipment is replaceable, lives are not.

Our experts are continuously developing techniques and procedures that improve work efficiency to offer the highest level of safety possible. The NINA safety program (No Injuries, No Accidents) was developed to create a work environment without occupational accidents or any other incidents. Regular **safety training courses** specifically tailored to offshore activities underline our commitment to safety.

With our highly qualified employees and state-of-the-art equipment we ensure and also certify that the seabed is free of ordnance before construction work starts.

STANDARDS FOR OUR QUALITY

- ISO 9001:2008 Quality management
 - ISO 14001:2004 Environment management
 - OHSAS 18001:2007 Health & safety management
- Licence to clear ordnance in compliance with the Explosives Act 7 and 20 according to German law „Sprengstoffgesetz“

TECHNICAL EQUIPMENT

OUR EQUIPMENT:
VERSATILE,
INNOVATIVE
AND PERFECTLY
MATCHED

Our modular equipment ensures that the ROVs can be used quickly and flexibly. The ROVs are not only excellently suited for use at sea, they can also be used on inland waterways. Although specially trained EOD divers may be used in water depths of less than 10 metres, our understanding of the risks to safety and timescales involved means that we use ROV and ancillary equipment wherever possible.

Safety always comes first, particularly when controlled demolition is involved. Our certified disposal experts are licensed to detonate ammunition on site using measures developed by our own company. We ensure that our people and the surrounding natural environment are protected using techniques such as bubble curtains placed around the target object.

TECHNICAL EQUIPMENT

UNEXPLODED ORDNANCE SOLUTIONS



Heavy-Duty Work Class Remotely Operated Vehicle (HD-WROV) for locating and salvaging ammunition

Tow-fish with gradiometer for locating ammunition

Electromagnet for salvaging ammunition



OFFSHORE EXPERTS

BOSKALIS HIRDES
EOD SERVICES
IS A SPECIALIST IN
THE OFFSHORE FIELD

The offshore construction industry is growing rapidly. The expansion of the renewable energy sector has brought with it highly complex offshore projects with many challenges. The one thing that they do have in common is a commitment **to personal safety.**

Our bespoke ordnance clearance service has provided services to a broad range of industries, including:

- Renewable energies (wind, wave and tidal)
- Energy supply
- Media supply line operators
- Harbour construction
- Dredging and marine engineering
- Infrastructure development

A GREAT TEAM



SERVICES OF BOSKALIS HIRDES AT A GLANCE

Our combination of qualified and motivated employees, with direct access to state-of-the-art equipment from our global resources, make us an ideal partner for completing marine engineering projects and onshore/offshore ordnance clearance:

- Marine engineering (dredging, coastal protection, flood protection, environmental improvements)
- EOD services (Survey and Investigation techniques, ordnance recovery, destruction of ordnance offshore)
- Ordnance clearance onshore
- Sand and gravel extraction

Heinrich Hirdes have been active in the national and international marine engineering, coastal protection and land reclamation sectors since 1912. Experience gained and procedures adopted from projects having highly specified requirements in sensitive areas such as nature conservation areas and national parks have evolved to become standard practice.

In 1991 we joined the Royal Boskalis Westminster N.V., one of the world's leading maritime service providers in the dredging, offshore energy and onshore infrastructure development sectors. The combination of our specific expertise and experience, with the backing of a global organisation gives us the ability to provide a 'one stop shop' for EOD services.

The risk posed by historical ordnance was recognised in 1978 and the company Heinrich Hirdes Kampfmittelräumung GmbH was founded. To meet the growing need for offshore services and the requirements of seabed ordnance salvage in connection with the installation and expansion of wind farms, we also founded the companies Heinrich Hirdes EOD Services GmbH and Boskalis EOD Services (UK) Limited in 2012.

www.boskalis.com/hirdes



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