

READY TO ACCELERATE THE ENERGY TRANSITION WITH US?



"The rapidly increasing demand for renewable energy requires the deployment of innovative and future-proof technologies. I am convinced that we can make an important contribution to accelerating the energy transition with our cost-efficient, rapidly deployable, and environmentally sensitive anchoring solutions."

Dirk Schulze CEO

SCHOTTEL Marine Technologies delivers cost-effective, rapidly deployable and environmentally conscious rock anchoring solutions for the global offshore energy (floating, wind, tidal, wave) and aquaculture industries.

For over a decade the team has been developing rock anchoring technology that can revolutionise the traditional approach to foundation systems, including gravity anchors or drilled and grouted piles, with a cost-effective, rapidly deployable and environmentally sensitive solution – the Swift Anchor. Key to this approach are the lifecycle cost reductions and low-carbon footprints of our anchors.

SCHOTTEL Marine Technologies is a member of the SCHOTTEL Group.

www.schottel-mt.com

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SCHOTTEL Marine Technologies are currently carrying out an extensive test programme at the SCHOTTEL Group's main production site in Dörth, Germany. Comprehensive tests to validate the capability of the Swift Anchor technology are presently being performed on this test site. These tests include anchor drilling, coring and sampling, anchor installation, tensioning tests and ULS/FLS load tests to support DNV certification.



For more information, please click here or scan this QR code











ABOUT SCHOTTEL MARINE TECHNOLOGIES

While the world faces the complexities of climate change, the pressure is on to cut carbon emissions, phase out fossil fuels and make the move to renewable energy. As the demand for natural power increases, organisations require smart solutions in the bid to harness offshore wind, tide and wave energy.

Driven by the requirements to have cost-effective, rapidly deployable and robust anchoring solutions to support the needs of the marine energy and aquaculture sectors, we have developed solutions for offshore environments across a range of difficult seabed types including rock, overburden and soft sediments.

Our anchoring solutions can be deployed in harsh locations quickly in just a single dive operation, often enabling installation during a short slack tidal period or limited duration weather window into a range of seabed conditions from compacted sand to tough basalt.



POISED TO CHANGE THE WORLD OF MARINE ANCHORING

Our patented rock anchor technology offers an innovative approach to secure floating devices in a more sustainable way. It opens up new areas for the installation of floating energy devices that have been considered challenging – until now. In this way, we can help reduce the cost of energy production and pioneer the acceleration of the energy transition.



10+ YEARS EXPERIENCE IN ANCHORING FLOATING DEVICES

Already deployed for tidal energy projects, we have more than ten years of experience in anchoring floating devices for energy generation. Our dedicated team of experts has extensive experience in innovation, research and development, product design and certification.



BACKED BY GLOBAL MARINE INDUSTRY EXPERTS

As a member of the SCHOTTEL Group, whose roots go back more than 100 years, we have access to certified manufacturing facilities and highly specialised engineering departments. In addition, we benefit from the comprehensive sales and service network comprising subsidiaries, sales agencies and service stations all over the world.

OUR VALUES

describe the core of our identity. They serve as a guiding framework for our strategic decisions

Our SCHOTTEL Marine Technologies values and help us to achieve the goals of SCHOTTEL Marine Technologies.

At SCHOTTEL Marine Technologies, we stand for:



RESPONSIBILITY

We share our expertise and take responsibility for our decisions. Each individual is accountable for the success and future of SCHOTTEL Marine Technologies while applying the highest safety and quality standards. We hold ourselves responsible towards one another, partners and the environment and care about each other. We use our resources responsibly for sustainable growth and shape our relationships in a responsible manner.



DRIVE

We are driven by the energy in each and every member of our team and the conviction that our technology can make a real difference. The SCHOTTEL Marine Technologies team is passionate about breaking new ground and developing innovative, value-adding solutions. We take pride in our enthusiasm and optimism for the future. This is what defines us and drives us every day – for ourselves, our partners, and our planet.



INTEGRITY

We believe in transparency and act with integrity. We apply the highest ethical standards in everything we do. Everything we say is open, honest and easy to understand. We are upfront and forthcoming with information and insights and allow our colleagues as well as our partners to question decisions without fear. We work for a company of which we are proud, and that everyone can rely on.



COOPERATION

We are supportive and respect our colleagues and customers alike. We create a working atmosphere full of appreciation, trust and reliability, in which every individual is able to fulfil their potential. To deliver safe and strong results for all, we are working closely together and value teamwork as well as diversity. We are convinced that cooperation is a prerequisite for the fulfilment of our goals.

PRODUCTS

Our range of patented and certified anchoring solutions have been carefully refined over many years to adapt to challenging geotechnical conditions, with improving rates of project viability and minimising environmental impact at heart. The solutions can be deployed in harsh locations quickly, often enabling installation during a short slack tidal period or limited duration weather window into a range of seabed conditions.

GROUTLESS SELF-DRILLING ROCK ANCHORS

Our Swift Anchors open up previously disregarded or challenging sites with rock seabeds where traditional anchor types cannot be adopted or are not cost-effective.

SCREW ANCHOR PILES

Screw anchor piles can support structures installed in sand or soft sediment on the seabed. Their rapid installation is cost-effective with a minimal seabed disturbance.

OUR ANCHORING TRACK RECORD



OUR SWIFT ANCHORS TECHNOLOGY

GROUTLESS SELF-DRILLING ROCK ANCHORS

are a type of system that utilises the load bearing capacity of rock. The solution opens up previously or are not cost-effective.

Groutless Self-Drilling Rock Anchors (Swift Anchors) disregarded or challenging sites with rock seabeds where traditional anchor types cannot be adopted



HOW DOES IT WORK?

Unlike traditional drilled anchor piles that require the use of grout to secure them in place, Swift Anchors rely on a mechanical interlock between the anchor and the surrounding rock to provide stability.

The harder the rock, the better the Swift Anchor works, leading to a stronger, more efficient load holding capacity.

One of the main advantages of our Swift Anchors technology is the ability to install much faster than traditional drilled and grouted anchors.

Our anchors can be installed in just a single overboarding of the equipment and withstand loads immediately upon installation.

They also require fewer materials, smaller installation vessels and labour, which help to reduce overall project costs. Additionally, Swift Anchors are more environmentally friendly than traditional drilled and grouted solutions and can be fully decommisioned by just reversing the installation process.

> Scan here to learn more about the installation process





EASIER INSTALLATION and more flexibility

BENEFITS



MORE **COST-EFFECTIVE**

thanks to lower lifecycle cost



ENVIRONMENTALLY SENSITIVE

with a favourable carbon footprint



YOUR KEY ADVANTAGES

Swift Anchors vs. traditional rock pile solutions

- \oslash Reduced installation times
- $\ensuremath{\boxdot}$ Reduced weather risk
- $\odot\,$ Less vessel deck space required
- ⊘ Less vessel crane capacity required
- No management of grout line to surface
- No confirmation of filling of the void needed, no qualification of good quality grout
- No cure time and delay in ability to load anchors
- No impact on carbon footprint due to grout (special cement)
- ⊘ Fully decommissionable



For more information, please click here or scan this QR code

SCREW ANCHOR PILES

A screw anchor pile is a type of foundation used to support structures installed in sand or soft sediment on the seabed. Helical steel plates are welded to the pile shaft, based on the intended ground

conditions. The helices can either be press-formed to a specific pitch or consist of flat plates welded at a specific pitch to the pile shaft.



INSTALLATION

To install the pile, it is screwed to the desired depth by rotating the helical pile. This method of installation provides a secure foundation for the structure, even in unstable ground conditions.

✓ MORE COST-EFFECTIVE INSTALLATIONS

Reduced deck spread and time on-site: anchor can be deployed with the aid of smaller DP type multi-purpose vessels without the need for costly heavy-lift capabilities

- RAPID PROJECT INSTALLATION TIMES
- MINIMAL SEABED DISTURBANCE
- CAPABLE OF WITHSTANDING SIGNIFICANT LOAD

In direction of the pile axis

EASILY DECOMMISSIONED SYSTEMS
Without a hole left behind

REDUCED COSTS Lower lifecycle cost from manufacture to decommissioning

in in later



For more information, please click here or scan this QR code

SERVICES

SCHOTTEL Marine Technologies has developed a highly specialised suite of tools, including Anchoring Remote Operated Vehicles (AROVs) and a Remote

Intervention Tool (RIT), to install and conduct future decommissioning and operation and maintenance of our anchors.



SUPPORTING ANCHORING PROJECTS THROUGH **GEOTECHNICAL SURVEYS & STUDIES**

Surveys are critical to success in anchoring projects. With a better understanding of the geotechnical They help us, and you, to understand the condition conditions, we can make more informed decisions and composition of the seabed.

throughout the project.

WHAT WE DO

A geophysical survey, which we undertake prior to the intrusive tests, will inform and allow us to assess the bathymetry, depth of rock mass and understand rock mass properties to inform better geotechnical deployment.

A geotechnical survey is a type of site investigation we carry out to gather information about the physical and geological properties of the subsurface soil and rock materials. It involves drilling boreholes, completing cone penetration tests or excavating test pits at various locations on a site to collect soil and rock samples, as well as conducting in situ tests to determine the characteristics of the ground.

MAIN OBJECTIVES

ASSESSING SOIL AND ROCK CONDITIONS AT THE GIVEN SITE

O DESIGNING SAFE AND COST-EFFECTIVE FOUNDATIONS FOR STRUCTURES OR INFRASTRUCTURE PROJECTS

The information gathered from the survey is then used to evaluate soil and rock stability, strength, and compressibility, which are important factors that can affect the performance and safety of structures built on the site.

THE OUTCOME

A geotechnical survey typically involves our team of engineers and technicians who are experienced in conducting subsurface investigations and interpreting soil and rock data.

The results of the survey are presented in a geotechnical report, which includes recommendations for an optimal anchoring solution and installation method based on the findings of the investigation.

OPERATIONAL SUPPORT

RAPID INSTALLATION USING ANCHORING REMOTE OPERATED VEHICLE

Our Anchoring Remote Operated Vehicle (AROV) has been developed in-house to pair directly with our unique groutless self-drilling rock anchors. It simplifies and accelerates the installation of our anchoring solutions, even in tough conditions.



CONDUCTING FUTURE DECOMMISSIONING USING REMOTE INTERVENTION TOOL

SCHOTTEL

The in-house developed Remote Intervention Tool (RIT) is a multifunctional device that positions itself to the anchor by means of an anchor gripping system. Its functions include anchor and mooring inspection, unfastening and decommissioning the Swift Anchor.



Scan here to download the FACT SHEET



MANUFACTURING

The production sites of the SCHOTTEL group are partners of SCHOTTEL Marine Technologies can specialised in the development and manufacturing of capital goods for various industries, from which

also take advantage.

- ✓ CLASS-CERTIFIED FACILITIES
- ✓ VERSATILE MACHINES AND SYSTEMS
- TRADITIONALLY HIGH LEVEL OF VERTICAL RANGE OF MANUFACTURE
- ✓ ACCESS TO INTERNATIONAL NETWORK
- LONG-TERM AVAILABILITY OF PARTS



COMPREHENSIVE QUALITY ASSURANCE IN ALL PROCESSES

- ⊘ ONGOING CERTIFICATION PROCESS
- ✓ QUALITY CONTROLS DURING PRODUCTION
- STANDARDISED FACTORY ACCEPTANCE TEST (FAT) PROCEDURES
- CLOSE DIALOGUE WITH SUPPLIERS

INDUSTRIES

ANCHORED TO THE FUTURE

Since 2012 our team has been working to deliver our unique solutions within a wide range of markets and applications. The systems could also be deployed within projects closer to shore, including pontoons and marinas.



ANCHORING TO COLLABORATE WITH NATURE

To date, floating offshore wind (FOW) projects have largely been delivered at a demonstration scale, however, the opportunities to produce renewable energy from consistently high winds further from shore are plenty.

Future successful projects in more complex and challenging environments will need innovative, smart and sophisticated technologies to overcome the difficult nature of operating in deeper waters. With the supply of cost-effective, rapidly deployable and environmentally conscious solutions SCHOTTEL Marine Technologies can contribute to the success of FOW projects.

Our team of experts understand that for success in floating offshore wind, projects require the effective delivery of a range of highly specialised anchoring solutions.

OUR HIGHLY SPECIALISED ANCHORING SOLUTIONS

✓ DEPENDABLE AND EFFICIENT

Robust, reliable, practical and cost-effective systems that provide durable station-keeping

⊘ QUICK INSTALLATION

Short installation times which drive down Levelised Cost of Energy (LCoE): requirement for rapidly deployable compact anchoring solutions

✓ MINIMAL ENVIRONMENTAL DISRUPTION

Achieved by less invasive anchoring solutions (reduced noise, seabed footprint, installation rock cutting volume)

✓ UNLOCKING NEW POSSIBILITIES

Increased addressable areas for developing floating offshore wind projects (deeper, more geotechnically challenging environments etc.)

✓ RESILIENT AND VERSATILE

Anchoring technology solutions that can withstand significant lateral and vertical loading (or a combination of both) to enable all floating wind technologies in development (semi-sub, spar, tension-leg platforms) driven by the different mooring arrangements from catenary, taut-moored, semi taut and vertical tension



MARINE RENEWABLES

provide steady and dependable power outputs, and as such, can become a major contributor in the challenge to reach the worldwide climate and

Ocean energy technologies have the potential to energy goals. With our solutions, we support the development of ocean energies in challenging areas characterised by rock seabeds.



TIDAL ENERGY THE POTENTIAL IN TIDAL ENERGY IS RISING.

Our unique solutions enable successful and predictable energy output from power generated by the accelerated flows of water through restricted channels as a result of the natural rise and fall of the ocean.

These systems minimise environmental impacts, drive down costs and, thanks to the rapid installation target time, create potential where opportunities for installation are short.



WAVE ENERGY **CLEAN ENERGY IS COMING IN WAVES.**

Technology such as Wave Energy Converters (WECs) present another opportunity to generate energy from the ocean, offering the potential for long term economic development in coastal regions.

For these projects to be successful, a high level of expertise and cost-effective solutions in rapid deployment of anchors are essential requirements. Often located in harsh environments to capture the power of waves, the need for innovation will help release the full potential of WECs.

REDEFINING ANCHORING FOR MARINE RENEWABLES

✓ 40 MINUTES INSTALLATION TIME

In the world of tidal and wave energy projects, anchor installation timing is critical. While the potential for developing marine renewable ventures is considerable, project feasibility often hinges on overcoming the challenge of installing an anchor during short weather windows when sea states are as benign as possible. Our pioneering solution was created to address this requirement, with an installation time (deck to deck) target of just 40 minutes in various seabed conditions from compacted sand to tough basalt, utilising our patented technology.

✓ MINIMISING ENVIRONMENTAL IMPACTS

Our patented technology achieves industry-leading standards in minimising environmental impact for anchor installation and maintenance. Subsequently, projects are delivered with minimal seabed disturbance, and installation is achieved quietly and tactfully. This innovative and environmentally conscientious approach to projects should have a positive influence in the site consenting and decommissioning process when considered against other solutions – a major benefit to utilising solutions from SCHOTTEL Marine Technologies.

IMPROVING COMMERCIAL VIABILITY

Our systems, processes and patented technologies have the potential to result in lower logistical costs than traditional gravity and other anchor foundations. The ability to rapidly install anchors in challenging geotechnical conditions and sites, along with our environmentally conscious approach, makes tidal and wave energy projects more cost-effective than ever before.

AQUACULTURE & MORE

Rock anchoring solutions from SCHOTTEL Marine in scaling up aquaculture and locating further Technologies are mastering new challenges offshore in harsher environments.

ANCHORED IN THE FASTEST-EXPANDING FOOD INDUSTRY IN THE WORLD

With the demand for aquaculture booming, lack of available space for fish farming activities is becoming a major challenge across the industry.

However, opportunities lie over the horizon, away from the land, where ocean currents are stronger and nutrient cycles more desirable. The result is cultivated fish stocks that are exposed to more naturalistic living conditions.

However, venturing into increasingly harsh

environments requires innovative solutions. Designing and deploying larger scale pens that can withstand storms and rough seas are critical to success.

Our innovative solutions provide our clients with the confidence to undertake projects that capitalise on the opportunities presented further offshore.



INTERESTED?

LET'S TALK ABOUT YOUR PROJECT!

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