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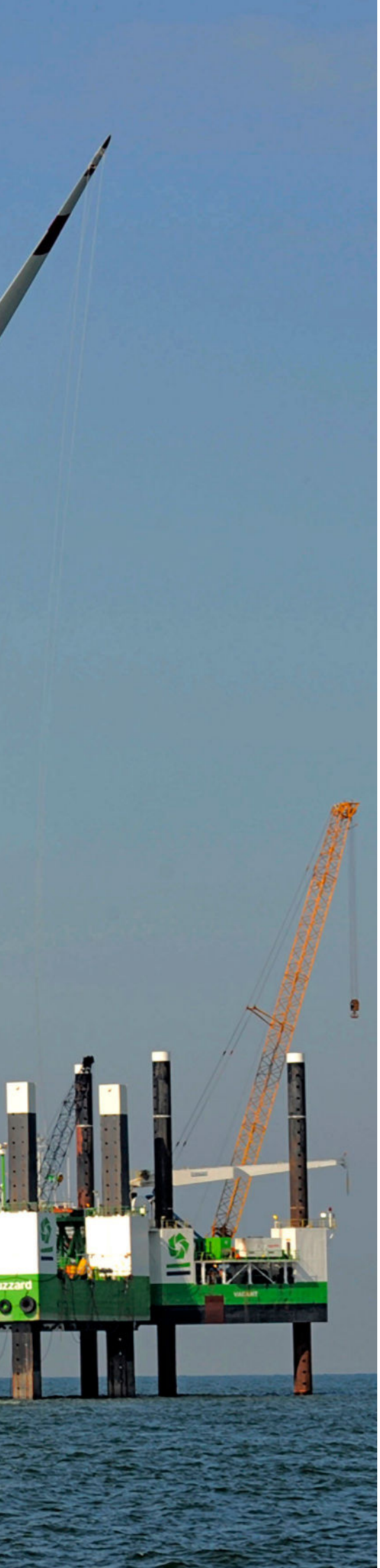

Precision tools level the playing field

Erik Roos, Director of Wind Industry Tools & Solutions at Enerpac, talks to PES about its expertise in levelling and fixation and explains the advantages of its in-house capabilities spanning design, engineering, manufacturing, and testing.

PES: It's great to speak to you again Erik and I'm looking forward to discussing Enerpac's part in the wind sector further in this issue. As onshore and offshore wind farms become commonplace, how important is it that as a company you can provide total solutions for the installation, maintenance or decommissioning of wind turbines and their foundations?

Erik Roos: It's always a pleasure to discuss Enerpac's involvement in the wind sector. As the industry flourishes with the rise of onshore and offshore wind farms, we are committed to delivering comprehensive solutions for wind turbine projects. With our end-to-end services, ranging from design and engineering to project realization, we offer a seamless and integrated experience for our customers. Our expert team combines extensive knowledge, cutting-edge technology, and innovative approaches to ensure precision and efficiency in every project.

As we actively drive the future of renewable energy, we possess a deep understanding of the intricate complexities associated with wind turbine installations. Through our provision of comprehensive solutions, we effectively cater to the diverse needs of our customers across various project stages and the entire supply chain. Our unwavering commitment is to be a trusted partner, consistently delivering exceptional results while contributing to the long-term sustainability of our planet.

PES: Do you look after all aspects of the production process in-house, or is any of it outsourced?

ER: We take great pride in our ability to manage all aspects of the production process in-house. This comprehensive approach has proven to be invaluable for our customers, as it ensures a seamless and streamlined

Erik Roos

experience, while delivering exceptional quality and flexibility.

With complete control over each production stage, we offer our customers a distinct advantage. Our in-house capabilities span design, engineering, manufacturing, and testing, allowing for close collaboration to meet specific requirements. By avoiding outsourcing, we minimise downtime, keep projects on schedule, and deliver faster, more efficient results to our valued end users.

PES: What are the benefits of this to the end user?

ER: One of the most significant benefits is the unparalleled flexibility we can offer. By managing all aspects of the production process in-house, we have the unique ability to adapt swiftly to special requirements and design changes. Our internal capabilities empower us to respond promptly and effectively to any modifications our end users may require.

This flexibility translates into tangible benefits for our customers. It allows for a more tailored and customised approach to project execution. We can collaborate closely with end users, accommodating their specific needs and incorporating their feedback seamlessly into the production process. Our ability to adapt and refine designs in-house ensures that the final product aligns precisely with the end user's vision and requirements.

PES: A key part of your offering is around levelling and fixation, correct?

ER: Absolutely, levelling and fixation are indeed a key part of our comprehensive offering. We have amassed an extensive track record of successfully providing cutting-edge tools and innovative solutions specifically tailored for transition piece (TP) manufacturers and transportation and installation (T&I) contractors.

Our expertise in levelling and fixation is backed by a deep understanding of the unique challenges and requirements involved in the wind industry. We have honed our capabilities through years of experience, working closely with industry stakeholders and staying at the forefront of technological advancements. This allows us to offer state-of-the-art tools and solutions that are designed to optimise the levelling and fixation processes, ensuring the highest standards of safety, efficiency, and precision.

Our close collaboration with TP manufacturers and T&I contractors has provided us with invaluable insights into their specific needs and pain points. We have actively listened to their feedback, refining our offering to address their most pressing challenges. By tailoring our solutions to meet their requirements, we have earned the trust and confidence of these industry players, solidifying our position as the go-to experts in the field.

Our extensive track record speaks for itself. We have successfully supported numerous TP manufacturers and T&I contractors in achieving their project objectives, delivering exceptional results and exceeding expectations.

PES: How important is it that the transition piece is leveled adequately?

ER: The importance of adequately levelling the transition piece cannot be overstated. It is not only crucial for the immediate stability and structural integrity of the offshore wind turbine, but also plays a significant role in ensuring the long-term lifespan of the entire installation.

A perfectly levelled transition piece is designed to withstand the immense forces that a wind turbine encounters throughout its operational life. These forces, including wind loads, dynamic loads, and gravitational forces, can exert tremendous stress on the structure. By achieving optimal levelling, we ensure that the TP is properly aligned, distributed, and capable of efficiently absorbing and distributing these forces,

safeguarding the turbine against potential damage or failure.

In line with our commitment to providing comprehensive solutions, we have recently introduced portable milling machines, as featured in a recent publication by PES. These cutting-edge machines are specifically designed to contribute to the perfect levelling of both transition pieces and blades. With their precise milling capabilities, they enable our customers to achieve the highest degree of accuracy, ensuring that TPs are levelled with unparalleled precision.

PES: Is it a difficult task?

ER: Levelling the transition piece is an inherently challenging task, particularly when conducted offshore. We hold immense respect for the T&I contractors who perform this crucial operation out in the field. It can be rightfully described as the Champions League of heavy lifting, demanding the highest level of expertise, precision, and coordination.

The complexity of levelling the transition piece offshore necessitates meticulous planning, advanced equipment, and skilled personnel. T&I contractors face unique and demanding conditions, including adverse weather, remote locations, and strict timelines. They must navigate these challenges while ensuring the safe and precise alignment of the transition piece, a feat that requires exceptional proficiency and professionalism.

Over the past two decades, the industry has made significant progress, gaining valuable knowledge and experience in levelling operations. Our customers have acquired substantial expertise, continually refining their practices to enhance efficiency and effectiveness. They have evolved alongside the industry, leveraging the lessons learned from early installations that lacked adequate sync lift systems.

PES: How does Enerpac make it easier?

ER: We are committed to making the levelling process easier for our customers. Through our partnerships with industry leaders, we have gained valuable insights and feedback that have shaped the development of some standardised solutions. By doing this, we provide our customers with a streamlined and efficient approach that can be easily implemented across different projects.

While we offer standardised solutions, we understand the importance of catering to the unique requirements of each designated turbine. Therefore, we also provide bespoke tools specifically designed for individual turbines. This combination of standardised solutions and tailored tools allows us to offer a comprehensive approach that strikes the right balance between efficiency and customisation.

PES: You've developed a hydraulic levelling system, haven't you. Can you explain how that works and its benefits?

ER: Our hydraulic levelling system ensures precise and accurate levelling of the transition piece on the foundation pile. Utilising hydraulic cylinders, it allows controlled and precise adjustments,

achieving perfect levelling before permanent installation. This mitigates risks of uneven load distribution and wind-induced vibrations. The system enhances efficiency and saves time during installation. While specific details are proprietary, our hydraulic levelling system represents a significant advancement in the wind industry.

PES: Can you also help with the fixation process for the transition piece?

ER: Yes, we offer expertise in both levelling and fixation processes for the transition piece. Our hydraulic system enables a secure grip between the transition piece and the foundation pile, ensuring a strong and stable connection for offshore installations. We see levelling and fixation as part of a total solution, providing a seamless and reliable offshore wind turbine structure.

PES: This involves the use of oil; is it biodegradable to consider health and the environment?

ER: We prioritise health and the environment in our hydraulic systems. We exclusively use and recommend biodegradable oil, ensuring a sustainable approach. We have developed a specialised hydraulic system that leverages hydraulic overpressure technology to prevent any oil spillage, further enhancing our commitment to environmental protection.

PES: Can you reference any recent projects where your products have been put into action?

ER: Certainly, we have had the privilege of deploying our products in notable projects such as St Nazaire and Courseuilles sur Mer, located on the west coast of France. These projects serve as prime examples of our solutions in action, demonstrating our capabilities and expertise in the wind sector.

PES: It all sounds very advanced. What are your plans for the future? Are there any new innovations already being developed?

ER: We are committed to waste management and reducing waste during levelling and fixation operations. We aim to minimise environmental impact and promote sustainability in our processes.

Our focus is on developing products that can be reused repeatedly, contributing to the circular economy. This approach aligns with our commitment to sustainability and underscores our dedication to developing innovative solutions that prioritise long-term environmental responsibility.

We strive to continue pushing the boundaries of innovation in the wind sector, while ensuring a greener and more sustainable future.

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