Repair, protect and improve

Barry Nisill, Vice President and Alexander Murillo, Technical Service Engineer, both at Belzona, made time to speak with PES about the part this well-established company, plays in repairs in the wind industry, both onshore and offshore. They welcome any regulations and use them as a minimum benchmark, which they exceed, in the manufacture of their products. One of their aims is to improve the return on investment, for operators and stake holders, through their coatings.

Barry Nisill

Alexander Murillo

PES: Hi Barry and Alex, it's a pleasure to welcome you both to PES Wind. I'm sure our readers would be interested to know a little about the history of Belzona.

Barry Nisill: Established in England in 1952, Belzona is a world leader in the design and manufacture of polymeric repair composites and protective coatings for machinery, equipment, buildings, and structures. Belzona is one of the few global designers and manufacturers of polymeric composites and coatings.

Throughout our history, we have been developed innovative products to repair and protect machinery and buildings, against wear and corrosion. We now have in excess of 85 products designed to meet the needs of a variety of industries and applications.

PES: We know you work in many industries, so we wondered how important the wind industry is to you?

BN: The power industry as a whole has always been a key industry for us, we have always developed products that adapt to the changing demands of the power industry. With an increased focus on renewable energy globally and the rapid increase in the wind industry, Belzona has seen the importance increase over the last 10 to 20 years.

The expansion of the industry is now so significant we dedicate substantial R&D resources, time, testing, engineering, marketing specifically developing products and solutions to the industry.

PES: Why is it so important to use coatings on wind turbines? Do you advocate the use of coatings at the production stage or purely during maintenance?

Alexander Murillo: Protection of the equipment, or to quote an old Belzona philosophy, for the protection of manmade resources. The cost of a wind turbine is expensive and the makers want to have the greatest return on their investment. To ensure that the turbine generates power and provides a return, it's important that it operate maintenance-free for as long as possible.

Erosion of the leading edge of turbine blades not only shortens the operating life of a turbine, but over time reduces the efficiency and in turn the level of financial return. Therefore, the importance of reducing the wear and extending the life cycle is critical for the operators.

We advocate both, our company's tagline is Repair, Protect & Improve. Our products, both repair composites and coatings, can be utilized as a part of new construction for initial protection and for the refurbishment of damaged components, protection from wear and restoring efficiency.

PES: We would love to know about your coatings, what they are, how they work and how they benefit the end-users?

BN: Our world-class in-house chemists and technicians are constantly developing and refining cutting-edge technology, to ensure we remain a truly market-led organization at the forefront of our industry.

A majority of our range is based on epoxy technology, but we do have urethane, polyurea, acrylic and hybrid technologies also. Working closely with industry we aim to understand what materials will benefit them and which properties will maximize the ease of application and performance of equipment and structures.

This allows us to respond with relevant and ground-breaking technologies that can offer ease of application and quick return to service, these are two features that were designed into our newest leading-edge protection product. Having ease of use is a positive to the applicators as they often work via rope access equipment and the quick return to service limits the downtime for the turbine operators.

Most of the products are two-part systems, so you are only required to use as much as needed. They can also be used in place of traditional repair systems, such as welding.

We are able to repair a damaged shaft in the nacelle area of a turbine, In-situ, no disassembly, no hot work and no machining required, this saves maintenance time, operations downtime, and therefore money.

PES: The turbines used offshore obviously present a different set of challenges, what solutions do you have for these specific, difficult conditions?

AM: As Belzona works in a number of

different industry sectors we are able to call on our experience in the offshore oil and gas industry. We have for decades used our products in some of the harshest environments in that industry.

The technology we now use as a standard across all industries often came from a need in the energy and petrochemical industries. We have technologies specifically designed for offshore environments, repair and coating products that have moisture tolerant properties, even allowing them to be applied underwater to the turbine and its foundations.

Again, as we also work closely with the different stakeholders in the industry, we understand that the type and severity of erosion for a turbine blade are different offshore in comparison to onshore, we, therefore, perform different tests to simulate conditions when formulating and designing products.

PES: Are there any mandatory regulations for coatings? How do you feel about this?

BN: There are many regulations that govern and affect our industry. Most users of coatings have become aware of a trend toward 100% solid, lower or VOC-free coatings in recent times.

Belzona has been creating 100% solid products for decades. We continuously monitor regulations and research to allow us to formulate and reformulate products to be as safe and as easy to use as possible.

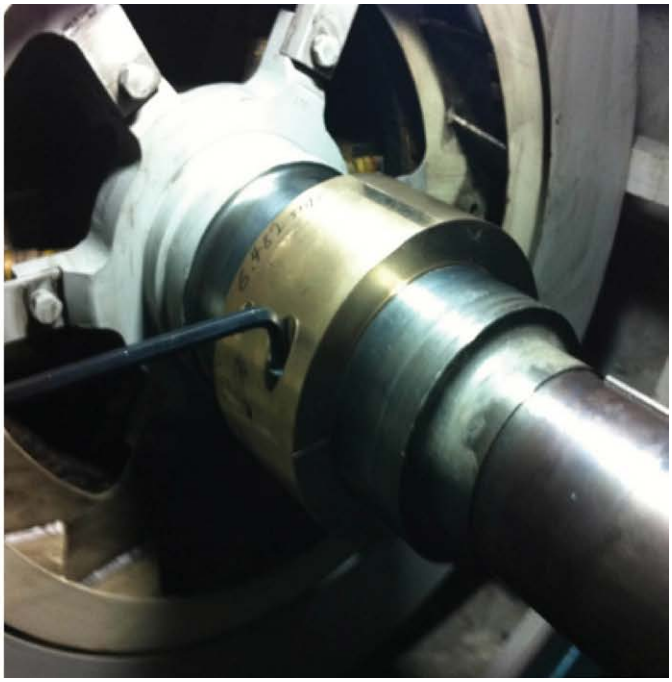
As we utilize our products globally, we have to be aware of potential changes in regulations in any market we serve, in different regions and we have to be able to adjust to them.

I think some people can see regulations as a burden, we see them as an opportunity. We see them as the minimum benchmark to achieve and as we design and manufacture in house, so we target to go beyond the guidelines of existing legislation.

This puts us ahead of other coating manufacturers and suppliers because when regulatory changes occur and they do frequently, we often are already in compliance. This avoids the need to withdraw or urgently reformulate products.

PES: How do you see this evolving, are there any new projects currently?

BN: Technology drives innovation and is in continuous evolution. We spend a lot of time researching technologies, ingredients, and products, we often find systems that cannot be used now for one reason or another, but in the future will have the potential to be incorporated into a product.



Belzona shaft repair

‘We can provide exceptional local service to customers, 24 hours a day, seven days a week and as part of our commitment to improving the application standards of our materials globally.’

As technologies evolve, become more mainstream, increase in capacity and reduce in cost the opportunity is to create new systems. Our latest LEP coating is a new hybrid technology for Belzona and was tested and developed for the LEP application and wind power industry.

This technology will now enable us to create other complimentary products, such as a rebuilding grade for turbine blades and additionally explore the technology used in other products, applications, and industries.

PES: Who applies the coatings, your employees or can they be applied by the customers’ workforce?

AM: The customer, or their chosen application contractor. We make our products as simple and easy to use as possible, typically without the need for specialized equipment. The ease in use and the local support we offer, means we support the workforce or chosen applicator(s) in applying our products.

PES: Is special training needed for this, if so, how does this work?

AM: As a manufacturer we are supported by our global engineering teams and our distributor network operating in over 120 countries. We can provide exceptional local service to customers, 24 hours a day, seven days a week and as part of our commitment to improving the application standards of our materials globally.

We offer a thorough training program, to provide applicators with the theoretical and practical knowledge required for achieving effectiveness and consistency of the application of our products.

We have training facilities around the world who teach training on a regular basis, but we are also able to react to the need of clients and customize training and locations to meet their needs.

PES: Where are your main markets, and geographically speaking are there any markets you would like to break into?

BN: Power generation is a global industry and the increase in renewable sources and, in particular wind power, means we follow the demand. As the initial wind power industry was land-based and centered in North America and Europe we have a large portion of our success in these geographies.

Emerging markets are Asia and Latin America, which we have been making a lot of progress with. The increase in offshore sites also is a market we want to continue to break into and be as successful as the land-based assets globally.

PES: It would be good to have your thoughts on what you think will be the greatest opportunities and challenges for the wind industry in general and for Belzona in particular, over the next few years?

BN: I believe there are two distinct categories that will create main challenges. They are the acceptance of wind turbines by society along with the permissions and approvals for land or offshore locations.

The second would be the costs. If the financial burden is too great the return on investment would not be high enough for stakeholders. The costs go far beyond the manufacture of the components and include the logistics, transport and site construction, and the medium to long term sustainability. These challenges create the opportunity for Belzona, we can’t influence the social and political challenge but we can help ensure that components are made to last longer, perform better and improve on existing designs for the long term.

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