MANKIEWICZ COATINGS, LLC

By Stephen Sisk

Mankiewicz Coatings offers its versatile ALEXIT BladeRep repair and maintenance system to wind farm owners and service personnel seeking efficiency, durability, and cost savings.

Wind turbine blades don't carry umbrellas. They can't dodge hailstones, wildlife, airborne debris. They can't exactly slather on SPF 30 either. They battle the elements day-in, day-out in doing their jobs. They take a lot of abuse.

Considering ever-increasing demands for larger-diameter rotors and the ultimate in efficiency, OEMs and wind farm owners are taking increased measures in protecting their assets.

In order to perform at maximum efficiency, rotor blades must have a smooth surface, be extremely durable, and be able to withstand all of the challenges the environment throws at them. Enter Mankiewicz Coatings and its ALEXIT BladeRep rotor blade maintenance and repair system.

Headquartered in Charleston, S.C., Mankiewicz Coatings, LLC has been meeting the maintenance and repair needs of the wind energy industry for more than a decade with its versatile BladeRep solution.

The system, built on the industrial coatings expertise of Hamburg, Germany-based Mankiewicz Gebr. & Co. provides a strong, resilient, streamlined blade profile, resulting in increased efficiency and cost savings due to reduced downtime.

Founded nearly 120 years ago as a specialty paint company for horse-drawn carriages, Mankiewicz Gebr. & Co. is currently the largest privately owned paint and specialty coatings company in Germany, serving niche segments of industries such as transportation (automotive and rail), aviation, medical technology, and manufacturing.

Given that history and expertise, the company was able to make a fairly seamless transition into the wind energy market. Mankiewicz's research and development staff took its successes and experiences in industrial coating applications and partnered with coatings experts across the globe in the initial development of BladeRep.

"Around 2000, Mankiewicz really got into the wind blade coatings industry heavily—both at the OEM level and at the aftermarket repair level," said Tripp Nelson, sales and marketing director for Mankiewicz Coatings. "It's something that we sought out primarily in Europe. We quickly became a leading supplier to the OEM market with a variety of different product offerings. "

Shortly thereafter, the company recognized the need for blade repair coating solutions for the maintenance side of the independent service provider market.

"The BladeRep product line was a natural offshoot of supplying the OEMs," Nelson said. "As more blades were being built, they would eventually need to be repaired and maintained."

In developing the actual products, Mankiewicz' team of 150 chemists and engineers had the benefit of a vast portfolio of industrial coating formulations. The group weighed and altered those formulas to meet the specific engineering and environmental needs presented by wind turbines. Experience in advanced resin technologies used in coatings for the aviation industry—which has similar needs as wind turbine applications—also drove much of the initial development of the coatings.

The BladeRep system consists of four separate components—profile filler, pore filler, leading edge protector, and topcoat—that, depending on individual circumstances, can be used individually or together for long-term protection of blades against the inherent environmental damage and corrosion they face. The system has been GL certified for performance and reliability.

Mankiewicz lists the four components of the ALEXIT BladeRep system as follows:

- Profile Filler 3—Used for filling major imperfections caused by weather or object penetration, this is a solvent-free, two-component polyurethane filler designed to be used for filling and fairing on glass reinforced substrates. This non-porous filler cures into an easily sanded surface and is ideal for repairing non-structure threatening cracks, pock marks, hail inclusions, or other deformations caused by flying objects or debris.
- Pore Filler 6—Used for filling smaller pinhole-sized surface imperfections, Pore Filler 6 is a solvent-free, two-component polyurethane filler designed to seal any surface to achieve a defect-free, smooth surface prior to applying LEP 9 or Topcoat 12 on glass reinforced substrates. Pore Filler 6 cures to a surface that is easy to sand and is ready for finish coating.
- LEP 9—Used as a finishing product specifically designed to protect leading edge areas where a coating with excellent abrasion and erosion resistance is required, this two-component, solvent-free polyurethane product has superior elasticity and flexibility for long-term leading edge protection. These "stretch" properties help distribute the kinetic energy of a variety of environmental conditions such as rain, sleet, snow, and pelting sand, thereby reducing blade erosion and extending the life of the blade.

In response to feedback from wind farm owners and applicators, a built-in BladeRep Maintenance Service Indicator (MSI) was developed within the LEP 9 system. With the MSI, a variety of application colors—red, white, and gray—helps to indicate wear visible from down tower, allowing wind farm personnel to assess current blade life expectancy. By visually identifying erosion, personnel are able to be proactive with blade maintenance—avoiding costly repairs after the fact.

- Topcoat 12—Used for additional protection as a final

For more information on Mankiewicz Coating's BladeRep products, visit www.bladerep.com or www.mankiewicz.com, or call 843-654-7755

topcoat to permanently seal and finish blade surfaces and provide exceptional durability, Topcoat 12 is formulated specifically for coating blades where a superior product with chemical, UV, abrasion, and mechanical resistance is required. This two-component polyurethane topcoat provides applicators with the ideal product for extending blade life and may be applied over all BladeRep products or any properly prepared surface. Available in many color shades according to global standards, Topcoat 12 can be easily matched to OEM colors as well.

Industry demand for BladeRep has surged over the last five or six years, Nelson said, due to what the company identifies as shifts in the wind turbine maintenance landscape.

"We've seen the market move from a responsive attitude to much more of preventative maintenance mind-set," Nelson said. "Now, a wind farm will often identify a set of turbines to coat with leading edge protection each season." Doing so, he said, makes sense because of the long-term cost savings.

"The BladeRep line itself was in its infancy before five years ago, because maintenance and repair really was not a high priority, from what we saw," Nelson said. "Now, the market is looking at more preventative maintenance."

Appropriately, BladeRep is primarily sold and used in the aftermarket repair and maintenance segment of the wind power industry. However, as more OEMs are signing on to perform service and maintenance agreements beyond the obligatory warranty period, they are also becoming potential customers for the BladeRep system.

In response to the increased demand, Mankiewicz has expanded its distribution and support staff for the BladeRep system in order to best assist and educate their customers on the products. "We've actually brought on more staff—both here and in Europe—to help support the applicators with these products," Nelson said. "We've expanded our distribution so that the products are available throughout the globe."

That commitment to not only provide the end user with long-lasting, reliable blade protection, but also provide service beyond the sale has also led the company to create other technical and instructional resources. These include online application guides and technical datasheets, and even a series of instructional videos hosted on YouTube.

Mankiewicz Gebr. & Co. has nearly 1,000 employees worldwide staffing more than 20 manufacturing, support, or sales facilities on five continents. The South Carolina facility serves as the sales, support, and distribution hub for the United States.