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CARTER PRODUCTS HELPS TURBINE BLADE MANUFACTURERS IMPROVE PRODUCTION

Grand Rapids MI • The rapid expansion of the wind power generation market, fueled by both private and government initiatives, requires a similarly rapid increase in the production of wind turbine components. This is particularly true in the manufacture of turbine blades, which continue to grow in both demand and size.

To maintain or increase output efficiency, larger blades must meet the divergent need of also being lighter in weight. Larger blades also require increased precision in the production process. To help increase accuracy, quality and production speed, Carter Products introduced their CPS 3-D laser alignment system.

Carter's initial project was with a large manufacturer with plants in the U.S., Mexico and China. "Our customer has experienced exponential growth in their turbine blade business," says Perez. "We are helping them meet current demands, and we're growing right along with them. Obviously, the environmental initiatives proposed by the new administration in Washington will help continue that strong growth trend. It's particularly gratifying to achieve both business and societal goals at the same time."

With Carter's new LP-HFD models, the improvements on this proven technology include more sophisticated projection capabilities and software. It is also available with a green laser output, which is more visible in many manufacturing environments, and is smaller and lighter than previous models.

For blade production, the Carter laser alignment systems provide an interface to industry-standard CAD design software. Layout and production information is extracted from the CAD program and projected to the work area. The system combines contour templating and computer control to increase accuracy; reducing cycle times, labor costs and rework. For large components such as turbine blades, multiple units are linked to project across the entire production area, but are tied to a single control. The system then provides sequential layup guidelines for sheet material placement as well as alignment of reinforcements and bracing if required.

The powerful Laser Projection Manager (LPM) software is able to process all graphical data exported to the laser interface. It visualizes the relationships between position, projection height and object rotation to ensure the greatest projection accuracy at any point in the working field. Additionally, for special production requirements which are not contained in the original CAD program, "teaching" the system is fast and easy.



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Finally, Carter laser alignment systems will also work with CNC machining centers to guide final milling and trimming of the finished blade or other component.

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Diagram shows how Carter Products LP-HFD laser alignment system speeds layup of composite materials in wind turbine blade manufacturing. The company has documented productivity increases of 50% using the system.