Increasing demand for environmentally-friendly energy is driving the need for larger, more powerful wind turbines. Eaton's hydraulic products and solutions offer higher performance, smoother control and increased reliability in any weather condition.

Decades of experience providing industry-leading products and solutions to wind have given us the unique advantage and insight to continue to lead in technology to solve today's utility-scale and future wind challenges.

Hydraulic Nacelle Solutions
Due to its nature of continuous production, wind farm owners demand reliability and performance even in extreme conditions. Eaton has proven solutions to meet the performance goals in the toughest weather conditions. Eaton has proven pitch and braking control solutions for faster response, reliable output, ease-of-maintenance and safe operation.

Eaton’s nacelle-focused hydraulic solutions are in the following categories:

A Hydraulic Pitch Control System
B Hydraulic Yaw and Drive Brake System
C Lubrication and Oil Coolant Lines
**A**

**Reliable and smooth pitch control systems**

Precision control of blade position is critical to ensure smooth, reliable output in a variety of wind environments. Around-the-clock performance of large turbines despite irregular wind and extreme environmental conditions requires technology that provides consistent angle control of blades (hence controlling speed and power production) to reach peak performance in all types of installations. Eaton products and solutions offer the perfect balance of smooth control to maximize life in normal operation and reliable control where fast response is required in unexpected conditions.

Eaton has provided heavy duty motors, hydraulic power units, control valves, cylinders, and hose/fittings for pitch control systems for decades. With our zero-leak and vibration-ready hose/fitting options, we have the right products to provide reliable performance in an environmentally-friendly manner. Battle tested to withstand the harshest environment while providing finesse in control, they offer a unique combination of reliable power and control.

**C**

**Clean and reliable lubrication and oil coolant**

Clean, filtered, and cool fluid circulating throughout the hydraulic systems in your turbine will extend the life of all critical components, including gear boxes. 70-90% of hydraulic system failures are directly attributable to fluid contamination, so applying the right products is absolutely critical to avoid downtime and optimize your overall system performance. Eaton products are known for their long history and having the right portfolio of products for zero leak fluid conveyance systems in a variety of applications ranging from vibration to corrosion protection.

Eaton’s portfolio of lubrication and coolant lines provide the building blocks that you need to protect your system.

**Reliable and responsive yaw and drive brake performance**

When making perfect wind isn’t possible with pitch control, these high power turbines need to be brought to a stop swiftly and smoothly, every time. Harsh weather conditions and remote locations add another complexity to the situation, increasing the requirement for reliability and reduced maintenance. Achieving this over the long-haul means only the most robust, reliable hydraulics should be used. Eaton has been providing high performance, highly reliable products and solutions for large-scale wind turbines across the globe.

Eaton offers heavy duty hydraulic power units, cylinders, custom manifolds, control valves, and hose/fittings for yaw and drive systems. Our experience design and application engineering teams have utilized our deep understanding of these applications to design the right products and have experience packaging them together to solve system needs.

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Printed in USA
Publication Number SA08323013E / 3PC
E-HYDN-3S045-E
May 2010

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