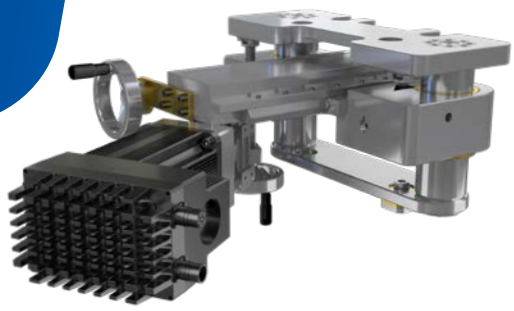
RegalRexnord™

CUSTOMER SUCCESS STORY

Onshore Wind Turbine Braking Systems

MARKET-LEADING SERVICE SOLUTIONS



Large onshore wind turbines rely on yaw brakes to keep their blades facing into the wind. Constituting a large disc and a multitude of callipers, it is important that this system is properly maintained. Maintenance is challenging, with personnel required to work with heavy equipment. Regal Rexnord Corporation has taken this challenge on with a suite of market-leading service solutions - developed by Svendborg Brakes - that increase the speed and ease of maintenance for wind turbine yaw brakes.

HIGHLIGHTS

- Servicing of damaged yaw brake disc
- Transported in 4 parts. No part weighs more than 40 kg
- Developed by Svendborg Brakes engineers
- Bolted onto machine frame
- Machines both sides of disc, if needed
- Quick setup and machine time
- Weighs under 100 kg

THE YAW BRAKE LIFTING AND INSTALLATION TOOL

As a friction braking application, all yaw brakes require maintenance to ensure optimum operation. This presents the challenge of handling callipers that can weigh up to 200 kg in sometimes cramped and difficult working conditions. A large wind turbine can feature up to 10 large brakes or twenty medium yaw brakes as part of its system. Handling this quantity and weight of equipment places strain on maintenance personnel.

The patented Yaw Brake Lifting and Installation Tool greatly streamlines yaw brake maintenance, allowing brakes to be serviced with increased speed. Brakes can be easily removed from their mounting positions and quickly lowered for maintenance work, with fresh brakes then reattached to the tool and raised safely for installation. The tool greatly increases the speed of the process while reducing strain on maintenance personnel. This also ensures that turbine availability is maximised, as down time is reduced.

Ease of use is further enhanced by some innate features. Weighing in at only 40 kg, the tool is easy to raise into position or transport. The tool fits many turbine models.

THE DISC RESURFACING TOOL

A key component of a yaw braking system is the large brake disc. As the turbine turns (yaws) to face the wind, the discs can suffer from wear or damage. Lack of maintenance or incorrect fitment of pads can sometimes lead to the surface of the disc being damaged.

Traditionally, these discs have been hard or impossible to service. Fixing them usually required changing of the yaw discs to new yaw discs.

ONSHORE WIND TURBINE BRAKING SYSTEMS

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Changing yaw dics requires the removal of the wings and of the sizable turbine nacelle. This is extremely expensive and requires the use of large cranes.

Regal Rexnord has a more straightforward solution. The Disc Resurfacing Tool enables yaw brake discs to be resurfaced uptower. Featuring a milling machine, the tool can be fitted directly onto the yaw brake mounting position. Compact and lightweight, it can operate within the confines of the yaw section, eliminating the need. The milling machines re-surfaces the disc, removing imperfections and returning it to good condition.

By eliminating the need for changing the yaw brake disc, the Disc Resurfacing Tool greatly reduces repair times and overall cost.

THE GROOVE TOOL

Glazing of the brake pads is another challenge for onshore wind turbines. Dirt, rust and moisture collects on the disc. Braking forces press this debris hard into the pad, resulting in glazing. This can produce excessive noise during operation and compromises braking performance.

Removing this glazing can be difficult, with some maintenance professionals resorting to full brake disassembly and grinding the pads down with an angle grinder. This is an incredibly time-consuming job, increasing downtime on the turbine. Another expensive alternative is to replace the pads entirely.

The Groove Tool from Regal Rexnord offers a permanent solution to the glazing phenomenon. The tool cuts grooves in the yaw brake disc, which removes glazing from the pads as the turbine yaws (turns) to keep required position to the wind. An special brush sweeps away debris from the grooves, enabling self-cleaning.

To ensure maximum effectiveness, Regal Rexnord calculates the optimal number of grooves, groove position, shape and angle, ensuring an optimum anti-glazing solution for all turbines. The result is a maintenance procedure that is much less costly and lengthy.

THE 24/7 SERVICE APP

Innovative service solutions are best when deployed at the optimum time. To ensure this, Regal Rexnord offers its customers access to the Svendborg Brakes Service App for iOS and Android, which provides free technical support 24/7. End users can contact onshore wind turbine yaw braking experts at any time via a dedicated technical hotline or email, gaining access to guidance or information fast. The app aims to greatly reduce downtime, with all purchasers of Svendborg Brakes solutions eligible for the free service. The app can be downloaded on the Google Play Store or Apple App Store.

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