SVENDBORG BRAKES™

CUSTOMER SUCCESS STORY

YAW BRAKE DISC REFURBISHMENT

COMPLETE SERVICE PACKAGE

The latest innovations in yaw brake systems and disc resurfacing for wind turbines generators (WTGs) can turn a costly and time-consuming activity into a minimally invasive process that can be completed in a breeze. Turbine operators interested in these novel solutions to maintain yaw brakes and their discs in optimum conditions while maximising responsiveness and uptime should consult with specialist service providers to see what they can offer.

James Woods, Senior Project Manager, Engineering & Test at Svendborg Brakes, guides operators through what to look for when selecting a yaw disc refurbishment and resurfacing service.

The yaw brake plays a crucial role in the positioning of the WTG nacelle in order to maximise the amount of energy it can harvest or protect the structure during strong winds. Used for control and holding functions, the brakes receive heavy use and must, therefore, be looked after correctly to ensure reliable performance.

HIGHLIGHTS

- Svendborg Brakes DRT gen2 tool remilled the damaged disc surface
- The turbine nacelle did not need to be removed to resurface, resulting in a major cost savings
- Remilling discs on-site reduces risk of damage and significantly lowers future downtime and maintenance costs

CHOOSE THE RIGHT COMPONENTS

To maintain peak yaw performance in turbines, it is important to maintain the surface of the yaw disc, keeping it smooth and even, as imperfections and damages can affect the adherent friction process. By relying on a highly specialised provider of braking systems and powertrain solutions with expertise in the wind energy sector, WTG operators and manufacturers can equip their turbines with robust, suitable components. A leading example is Regal Rexnord Corporation, with brands such as Svendborg Brakes and Stromag, that can provide comprehensive turnkey technologies designed specifically for the wind market.

ACCURATE REPAIRS CAN BE FAST, NON-INVASIVE AND ECONOMICAL

Even the sturdiest yaw brake will be subject to a repair and maintenance schedule. However, the latest development in yaw brake disc servicing are focussing on reducing downtime through the introduction of portable disc resurfacing machinery for in situ repairs. These compact tools can be carried onto the wind tower and mounted on the bedframe, without dismantling the nacelle or removing components for off-site repairs. While these innovative solutions can deliver unprecedented speed and cost savings for maintenance activities, the

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methods offered by different specialists can greatly differ. Therefore, it is crucial for WTG operators to understand the different services offered and know what to look out for.

Firstly, milling machines should be favoured over grinding wheels, as they can offer faster execution times while producing less fine dust in the process (dust can affect any electrical equipment in the turbine). Secondly, wind turbine operators should select solutions that can be operated automatically or using computer numerical

control (CNC), in addition to manually. By doing so, it is possible to further reduce disc resurfacing times while optimising the quality of the end result.

A successful system which is tried and tested in-the-field has been developed by Svendborg Brakes. The solution addresses the core requirements of the service with a lightweight single-axis CNC milling machine that can resurface discs by mapping their surface in order to create a tailored programme to repair it. This allows the system to remove minimal material while completing the resurfacing process in less than a day.

FAVOUR HOLISTIC OFFERINGS

In addition to identifying the right disc resurfacing unit, WTG operators should look for a maintenance specialist that can offer a comprehensive service; one that encompass all activities associated with disc maintenance. These include inspection and the ability to independently conduct lifting, removal and reinstallation activities.

Furthermore, by choosing a specialist with substantial experience in the wind energy sector, businesses can rely on a partner that understands their needs and addresses them accordingly. In particular, Svendborg Brakes has the experience and expertise to carry out maintenance while keeping the WTG operative.

Finally, a full-service provider of brake solutions and services will provide a key insight into how to optimise the performance and service life of yaw brakes. For example, it will examine the existing setup and offer upgrade opportunities, such as the use of the latest friction materials.

Conventional disc resurfacing in WTG yaw brakes requires substantial investment in terms of labour, downtime and costs. However, by selecting a wind turbine brake specialist with individual engineering, material sourcing, manufacturing and servicing expertise, such as Svendborg Brakes, operators can buck the trend in repair and maintenance activities, completing a disc resurfacing project in only three days. The company was recently able to do that as well as perform complete pad exchange, with only half a day of true downtime, as the turbine could run during night. As a result, businesses can maximise productivity and profitability while maintaining optimal WTG's operating conditions.

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