

Liebherr unveils a frequency converter system for multi-megawatt wind turbines

- New Liduro Wind high-power density low-voltage frequency converter system for applications with a drive power of up to 8 MW in a back-to-back configuration
- Modular switch cabinets for installation in tower platforms or gondolas
- Special cooling system for long life and fast protection system for increased safety provision

Nussbaumen (Switzerland), 16 August 2018 – At WindEnergy 2018, the leading international trade fair for the wind industry, Liebherr unveils its new Liduro Wind low-voltage frequency converter system for power outputs of up to 8 MW in a back-to-back configuration to the professional public.

At the leading international wind energy trade fair WindEnergy 2018 in Hamburg, Liebherr unveils the Liduro Wind low-voltage frequency converter system for generator power outputs of up to 8 MW in a back-to-back configuration to the professional public. With Liduro Wind, Liebherr Components presents a new development in the field of frequency converter technology to the wind industry. The power output of this system ranges from 1.5 MW to 8 MW and is designed for a voltage range of up to 690 V. The frequency converter is suitable for geared, hybrid and direct drive wind turbines utilizing full inverters with both permanent magnet synchronous generators and separately excited synchronous generators. To convert the variable-speed power supply, the frequency inverter system can be installed in a space-saving manner in the gondola or on the tower platform.

Modern wind turbines require extremely reliable frequency converter systems in order to safely feed their steadily increasing power into the supply network. At the same time, safety requirements and service life expectations for frequency converter systems within wind turbines are also increasing. In order to meet these requirements, Liebherr-Components Biberach GmbH has equipped the new frequency converter system with an innovative cooling concept that keeps the temperatures of the individual components low. This significantly increases the life expectation of the components and their quality. The frequency converter cabinets are designed with IP 54 level protection and are

completely closed so that they are independent of environmental influences and are applicable in extremely hot or cold regions without a change in their mechanical structure. The cooling power requirement for the wind turbines is reduced thanks to this high degree of protection as well as the effective liquid cooling. The closed design means that almost no waste heat is emitted in the immediate vicinity of the frequency converter.

Another innovation is the Liduro Fast Protection System, which provides a very fast and secure defect detection and repair. The simple service concept also eases repairs and maintenance work.

Liduro Wind is based on a platform architecture. Its core components are the high-performance power modules of the new LCU 300 series, which feature a high power density of up to 13.5 MW/m³ as well as a wide power range from 1,000 kW up to 2,000 kW in only two designs. Fast and reliable protection functions ensure a secure and long service life. The power modules can be configured as generators or grid infeed units (AFE). These can be used in parallel operation with a common DC voltage bus for high total output, or for a partially-redundant system design. As an option, the modules can also be configured with an integrated brake chopper.

Another platform component is the Liebherr LCF control unit, with the corresponding control, protection and supervision functions, along with rotary encoder and communication interfaces. For a complete system, power switches, filter chokes, DU/dt filters and braking resistors are available. The cabinet solutions are installed in such a way that access to the individual system components and assemblies for servicing needs are quick and easy.

One further considerable benefit of such a system design is the high flexibility with which individual wind turbines can be configured in even the most compact of installation spaces. This offers a wide range of possibilities for integration within a wind turbine gondola or directly on a tower platform.

Captions

liebherr-liduro-power-electronics-power-modules.jpg

liebherr-power-electronics-liduro-converter-cabinet-closed-wind.jpg

Low-voltage frequency converter system Liduro Wind for wind turbines

Contact person

Alexandra Nolde

Senior Communication & Media Specialist

Phone: +41 56 296 43 26

E-mail: alexandra.nolde@liebherr.com

Published by

Liebherr-Components AG

Nussbaumen/ Schweiz

www.liebherr.com/frequency-converter-system