

Atech relies on various Beckhoff Embedded PCs for the control and regulation of the pitch box.

Atech

Compact pitch systems with open control technology

Atech Antriebstechnik builds pitch systems for wind turbines. The uncompromising concept is characterized by a reduction of components and high reliability in the operational management. Beckhoff cooperates closely with Atech to maintain these standards.

Pitch systems are exposed to great stresses and, as safety systems, must remain functional at all times. They are used not only to adapt the rotor speed precisely to the prevailing wind; in extreme cases, the pitch systems are also used as emergency brakes. Redundancy, low maintenance and high load capability are therefore central requirements – especially under the extreme environmental conditions under which wind turbines must operate.

Atech uses electrical pitch systems, which is an obvious choice for a manufacturer that also markets drive and battery technologies. In addition, the company has a close and long-standing development partnership with the ZAPI group, which is located in the Emilia-Romagna area of Italy. The Atech concept is based on low-voltage technology. All systems are offered for supply voltages between 45 and 100 V. The systems themselves are designed for wind turbines of output classes between 1 and 6 MW. The pitch systems are optionally offered with maintenance-free, load-cycle-independent capacitors, which supply the pitch adjustment system with the necessary power in the event of a power failure.

Special consideration in the development of the Atech pitch systems is given not only to wind-specific requirements, but also to general requirements for automotive use. Atech systems are characterized by tolerance to extreme temperatures and temperature fluctuations, as well as high resistance to shocks and vibration. Many years of experience are reflected in the quality of the products.

Atech has opted for a compact design. Only three pitch boxes are used per plant – one for each blade – which, additionally are 100% identical. The systems are offered not only as standardized solutions, but also as customer-specific versions designed in close cooperation with the devel-



opers of the wind turbine. This permits specific customer solutions on a modular basis. The solutions developed in this way are then produced by the customers themselves (e.g. Goldwind, Vensys, Guodian United Power or Winwind) with the help of the Atech and Beckhoff components.

Various Beckhoff Embedded PCs are available for the control and regulation of the blade pitch. Common to all is a PROFIBUS slave interface to connect to the main controller. The PROFIBUS cabling is connected to the nacelle by a slip ring. Newer designs are characterized by CANopen communication to the power components and battery chargers employed, and the entire system is even more compact as a result. The CX9000 Embedded PC from Beckhoff offers a particularly simple to operate Web interface for easier commissioning.

Atech www.atech-antriebstechnik.com

| CX9000 system | BX system | BC system |
|---------------|-----------|-----------|
| CX9000-0001 | BX3100 | BC3150 |
| EL5001 | KL5001 | KL5001 |
| EL9011 | KL9010 | KL9010 |
| EL6731-0010 | KL1809 | KL1104 |
| EL6751 | KL2809 | KL2408 |
| EL3204 | KL3204 | KL3404 |
| EL1809 | KL9010 | KL4001 |
| EL2809 | | KL9010 |