TECHNICAL KNOW-HOW FROM A SINGLE SOURCE

A model for success from Austria

AMSC Austria develops complete design solutions for wind turbines and delivers the technology and know-how for wind turbines builders.

www.amsc.com

For more than 20 years, AMSC Austria has been a leading developer of wind turbines, and has been using Bachmann controllers for a long time. With its »Windtec Solutions«, AMSC Austria supplies plant concepts in the rating range from 0.6 to 10 MW. The latest know-how is also used for improvements to existing wind farms with other wind turbine designs, in order to increase the yield by up to 8%. More than 10,000 turbines have been built worldwide with the »AMSC Austria« design.

Retrofit: optimization of wind turbine operation

The retrofit offers of AMSC Austria increase the value of existing wind farms. Thanks to the modular design of the Bachmann controllers, the latest controller technology can improve profitability in older turbines. The new controller system enables full transparency for the turbine operator and increases availability whilst reducing the operating and maintenance costs at the same time. Adaptive and intelligent controller algorithms increase energy production by up to 8% and reduce the mechanical load of the turbine. The lifespan of the turbines is increased. AMSC Austria's retrofit solutions therefore offer an excellent return on investment.

Core expertise for the new 3 MW 140+ wind turbine

AMSC Austria supplies the entire technical know-how from a single source: Highly qualified mechanical engineering designers work closely together with experts for electrical and control engineering. The company's software department ensures full turbine transparency for manufacturers and operators, as well as optimum turbine operation. A US team of power electronics engineers develops efficient inverter solutions for the turbines. The electrical switch cabinets and power inverters are built in the company's own production plant in Romania. Local service teams make it possible to establish lasting partnerships with customers.

AMSC Austria is the only wind turbine developer that can provide all independent turbine manufacturers and wind farm owners with all essential services from a single source. AMSC Austria and its teams have developed the most attractive onshore turbine for the coming years: the new 3 MW platform has a rotor diameter of over 140 m. With a wide selection of tower concepts, the best winds are reached at hub heights of up to 140 m.

Intelligent and adaptive controller algorithms

The wind turbines of AMSC Austria were developed from a fixed standardized design, right through to smart turbines optimized for specific wind farms. Complex data volumes are continually analyzed by self-learning algorithms and the turbines adapted to actual conditions. This ensures the optimum alignment of the nacelle and blade angle in order to achieve optimum torque and speed control of the plant. As an additional service, AMSC Austria also calculates the optimization of operating parameters at the particular wind farm location. Load calculations at particular sites enable fast blade angle control and reduce the mechanical load of the turbine. Any manufacturing deviations, such as an inefficiently installed anemometer, are identified with data analysis and optimized with dynamic controls of the nacelle alignment. This permanently ensures maximum energy production.

Example: Power Booster

The »Power Booster« developed by AMSC Austria is based on an adaptive controller algorithm which, with additional sensors, optimizes turbine output according to the prevailing grid conditions and with the maximum possible mechanical and load conditions. Part of the solution is a 690 V main supply monitoring system provided by Bachmann's GMP232 grid monitoring module, which supplies the measured values for grid identification.

Based on this information and a validation of the 400 V auxiliary supply via Bachmann's GM260 grid monitoring module, the »Power Booster« algorithm adapts production output dynamically. In order to enable optimized torque and blade angle control, Bachmann's safety security concept was selected for reliable turbine Condition Monitoring. The Bachmann SLC284 safety controller operates as the central safety device, and ensures, in conjunction with the SCT202 safety speed monitor, continuous speed monitoring based on safety integrity level SIL2. The »Power Booster« enables optimum use of the wind turbine power limits and thus increases power production.

» The Bachmann control systems enable us to develop innovative solutions in the field of plant operational control. «

Michael Messner
Vice President & GM Wind Products