



Fig. 1 - Wind mill

Electrohydraulics for “pitch control” Technology and innovation for onshore and offshore wind mill power plants

The worldwide growing demand for clean and renewable energy sources constantly increases the general focus on Green Power.

Wind turbines, together with solar power plants, are nowadays the most developed solution where innovative technologies are put in place by major manufacturers to increase the efficiency and reliability of the systems also in critical environmental conditions like in northern regions or marine areas characterized by low temperatures or high humidity.

Atos has developed a specific electrohydraulic solution for the dynamic regulation of the turbine's blades angle (pitch control) that represent the “core” of the system as it allows to keep under control the power generated in front of variations in the wind intensity, thus stabilizing the energy absorbed by the electric net:

Atos electrohydraulic servoproportional control consists of:

- a) digital servoproportional valve with high performances integral digital electronics, featuring:
 - optional fieldbus communication CANopen, PROFIBUS DP, EtherCAT, POWERLINK, EtherNet/IP
 - high dynamic response and excellent spool positional accuracy and repeatability
 - reinforced execution to withstand vibrations and mechanical chocks (up to 50G on 3 axes)
 - tropicalized driver's electronics to withstand very humid environments
 - extended ambient temperature range from -40°C to +60°C
 - remote diagnostics functions
- b) hydraulic servocylinder with heavy duty construction, featuring:
 - rolled rod threads and high resilience materials suitable for low temperature up to -40°C
 - digital SSI integral position contact-less transducer to perform accurate position feedback and virtually infinite working life
 - low friction PTFE special seals, mineral fiber filled, to allow the best positioning control at high frequencies (over 5Hz) thanks to the reduced friction and the absence of stick slip phenomena
 - marine painting class C5-M to ISO 12944 to ensure the best corrosion protection

Atos electrohydraulic solutions are the preferred choice of several wind mill manufacturers worldwide, who appreciate its superior performances & reliability, results of years of R&D and successful field experiences

For more detailed information look at www.atos.com



Fig. 2 - Digital proportional with integral rugged driver



Fig. 3 - Digital servoproportional valves with CANbus interface



Fig. 4 - SSI servocylinder



Digital proportional with integral rugged driver

Electrohydraulics for wind mill “pitch control”

The worldwide growing demand for clean and renewable energy sources constantly increases the general focus on Green Power. Wind turbines are the most developed solution where innovative technologies are put in place to increase efficiency and reliability.

Atos has developed a specific solution for the dynamic regulation of the turbine's blades angle (pitch control), consisting of:

a) servoproportional valve with integral digital electronics and optional fieldbus communication, featuring:

- high dynamic response and accuracy
- rugged construction to withstand vibrations and shocks (up to 50G on 3 axes)
- tropicalized driver's electronics to withstand very humid environments
- extended ambient temperature range from -40°C to $+60^{\circ}\text{C}$

b) hydraulic servocylinder with heavy duty construction, featuring :

- low temperature up to -40°C
- digital SSI integral position contact-less transducer with infinite working life
- low friction PTFE special seals with reduced friction and absence of stick slip phenomena
- marine painting class C5-M to ISO 12944 to ensure the best corrosion protection

Atos electrohydraulic solutions are the preferred choice of several wind mill manufacturers worldwide.

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