

# Efficiency Is a Breeze Wind Energy Solutions

## ABB Low Voltage Softstarters



*The blades on a wind turbine sweep 48 tons of air a second.*

Wind energy is actually a by-product of solar energy. Winds are caused by the uneven heating of the atmosphere by the sun, the irregularities of the earth's surface, and rotation of the earth. Wind turbines convert the kinetic energy in the wind into mechanical power. Motors and generators are essential components of the wind energy system. And just like motors and generators in any other application, they experience extreme mechanical and electrical stress and wear.

The ABB softstarter is engineered to address the common problems associated with this mechanical stress. Initial motor starting current draw and torque shock experienced when using yaw motors can be reduced by the softstarter. Additionally, the softstarter provides smooth motor acceleration and deceleration. This eliminates the



possibilities of blown fuses or tripped breakers and overloads, as well as damage to shafts, bearings, motor mounts, couplings and belts due to high starting currents and starting torque.

Use an ABB softstarter in your wind energy application to see significant downtime, labor, and material costs reduced.

Common wind energy problems	ABB Softstarter solutions
<ul style="list-style-type: none"><li>• High initial current draw</li><li>• Nuisance tripping</li><li>• Stressed and damaged motor/generator components</li><li>• Voltage drops</li></ul>	<ul style="list-style-type: none"><li>• Small and compact</li><li>• Cost efficient solution</li><li>• Adjustable start and stop ramps</li><li>• Built-in presets for compressors, conveyors &amp; fans</li></ul>

# Common wind applications for softstarters

Application	ABB Softstarter solution
<b>Yaw</b>	A softstarter is frequently used to energize and control the hydraulic pump which directly controls the blade pitch and direction.
<b>Generator</b>	A softstarter is commonly used to smoothly close the connection from the generator to the energy grid, eliminating energy surges.
<b>Mechanical Stress</b>	Like any mechanical apparatus, a wind turbine can experience extreme mechanical wear. A softstarter is a perfect solution to eliminate this wear and tear. Some common instances where mechanical damage can be solved by utilizing a softstarter include: <ul style="list-style-type: none"> <li>• Broken or damaged couplings</li> <li>• Damaged or misshaped motor mounts</li> <li>• Twisted or sheared shafts</li> <li>• Damaged pillow blocks</li> <li>• Inquiries for any other type of mechanical "soft-start" devices</li> <li>• Worn, squealing, or broken belts</li> <li>• Broken shear pins or shaft keys</li> <li>• Damaged gears or gear boxes</li> <li>• Inquiries for fluid couplings</li> </ul>
<b>Electrical Stress</b>	Some common instances where electrical stress can be eliminated by utilizing a softstarter include: <ul style="list-style-type: none"> <li>• Breakers tripping or fuses blowing on start-up</li> <li>• Motors in remote locations</li> <li>• Any wound rotor motor</li> <li>• Short motor life, high duty cycle</li> <li>• Motors being run off generators</li> <li>• Any medium voltage motor</li> </ul>
<b>Other softstarter applications in the Wind industry</b>	Backup power motor/generators, transfer/booster/feed/sump pumps, fans, blowers, dryers, conveyors, mixers, centrifuges, air & gas compressors, inverters, controlling systems

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## ABB Softstarter families



**Compact Range PSR**  
2-75 HP @ 480 V

- Fast, easy installation & setup
- Integrated bypass
- Easy adjustments
- Fieldbus connectable



**Flexible Range PSS**  
10-200 HP @ 480 V

- Fast, easy installation & setup
- Operate with or without bypass
- Current limit option
- Fault LED & relay output



**Advanced Range PST**  
20-900 HP @ 480 V

- Easy to program digital display
- Integrated bypass (300 HP and up)
- Electronic overload protection
- Torque Control®
- Fieldbus communications



*For more information about ABB's softstarter products and accessories, consult our Softstarter catalog, available for ordering or download from our literature library at:*

[www.abb.us/lowvoltage](http://www.abb.us/lowvoltage)

PSR, PSS, PST & Extreme Duty  
Softstarters catalog  
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