

Aerodynamic Upgrades

Improving turbine performance with vortex generators and gurney flaps

BENEFITS

- Increase AEP by up to 1.2%*
- High-quality materials and installation
- Certified by DNV-GL

TURBINE PLATFORMS

- V82-1.65MW
- V90-1.8/2.0MW
- V90-3.0MW
- V100-1.8/2.0MW

*In IEC3 class conditions and on turbines where Vortex Generators and Gurney Flaps can be combined.

At Vestas, we work continually to improve the performance of wind turbines. For more than 30 years, we have harnessed innovation to produce ever more efficient wind turbines. Our Aerodynamic Upgrades provide the latest development in wind turbine blade technology to increase the profitability of your previously-installed fleet.

Vortex generators

Placed strategically along the leeward side of the blade, vortex generators reduce the separation of air flow in the root-region of the blade and increase lift. Vestas vortex generators are specifically designed for Vestas blades to improve the aerodynamic performance of wind turbines and increase total energy output by up to 0.8%*. Vortex generators are used on their own on V82 turbine blades and in combination with gurney flaps on V90 and V100 turbine blades.

Gurney flaps

The latest addition to our Aerodynamic Upgrades family is the gurney flap. Gurney flaps are small, flat plates fitted at a right angle to the windward side of the blade along the trailing edge. They effectively change the camber of the aerofoil near the trailing edge and increase lift. In combination with vortex generators, gurney flaps will increase annual energy production by up to 1.2%*.

Figure 1 Example of gurney flaps on a wind turbine blade

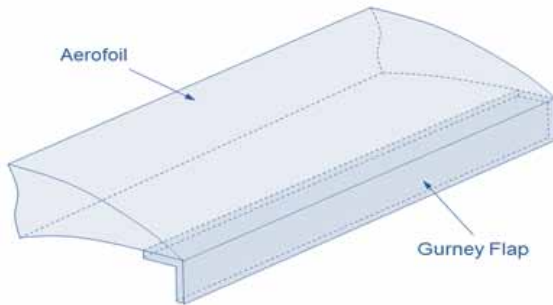
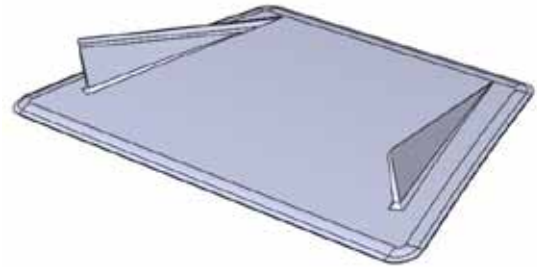


Figure 2 Example of a counter-rotating vortex generator



Implementing Aerodynamic Upgrades will directly benefit your bottom line, and help you recover capital cost early. A certification by DNV-GL, highly-skilled technicians and extensive quality control measures make Aerodynamic Upgrades a safe and durable upgrade solution.

A part of Vestas PowerPlus™

Vestas PowerPlus™ is a suite of products designed to improve the annual energy production of previously installed wind turbines by incorporating the latest innovations in the wind industry.

In addition to the Aerodynamic Upgrades, Vestas PowerPlus™ includes Power Uprate, Extended Cut Out and Power Performance Optimisation software. Vestas PowerPlus™ upgrades have already been implemented on more than 1,300 wind turbines worldwide, delivering up to 5%* more energy.

If you would like to learn more about how Aerodynamic Upgrades and Vestas PowerPlus™ can benefit your business, please contact your local Vestas Services office.

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