

UPGRADES MADE BY NORDEX

Serrations

As the manufacturer, we know your turbines best. With our **Upgrades made by Nordex** we provide individually tailored retrofits. These upgrades improve the performance, the availability and the safety of your turbines, helping you to achieve even larger yields.

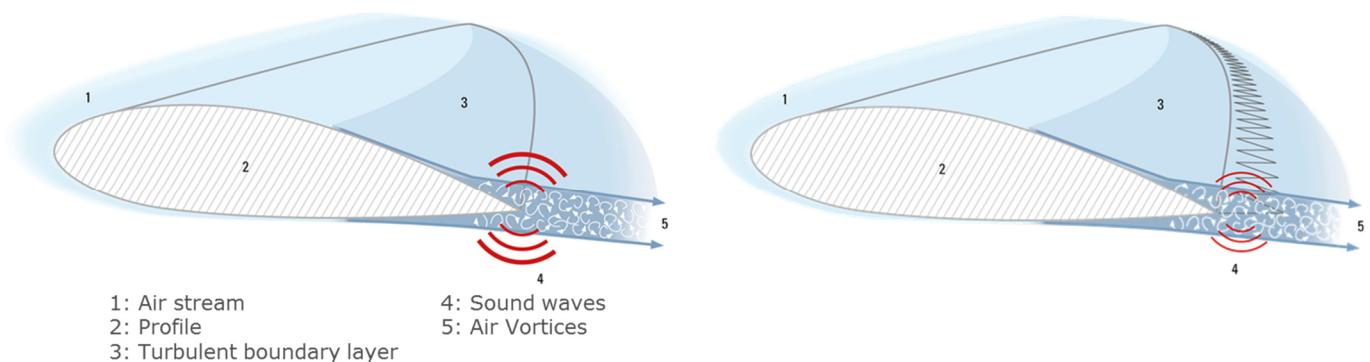
► Brief technical description

Depending on the location, wind turbines are subject to regulatory requirements to reduce sound emissions. Turbines are curtailed, for example, at night in their power production in order to comply with the building permission. **Serrations** reduce the sound emissions of the wind turbine by around 1.5 decibels, allowing a yield increase of up to 6 percent without exceeding regulatory specifications.

Serrations are thin, zig-zagged components attached to the rotor blade for sound reduction. They influence the turbulent trailing edge sound by replacing the straight edge of the rotor blade with a serrated one. This ensures a gradual transition of the turbulent boundary layer flow to free flow reducing the sound emission significantly.

The **Serrations** installation is carried out by our rope technicians directly up-tower on the rotor blades. After the installation the system is then switched to a higher operating mode, resulting in a performance increase.

Serrations are part of the Upgrade package **Xtended Power** sound concept and applies to our Delta and Gamma generation turbines.



► Benefits

- Reduction of sound emissions of around 1.5 dB(A)
- Lower sound emissions allow for switch to higher mode of operation