

## A component journey

# Strong winds – Turbine gears

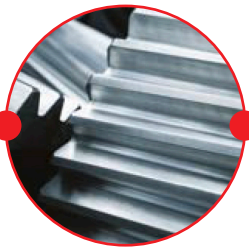
Modern wind turbines are complex power generation systems, with thousands of components, and are expected to provide reliable operational service for 20-30 years. The drivetrain of a wind turbine – consisting of the gearbox and generator – is exposed to extreme environmental stresses and high torque loading. To withstand such high dynamic loads, gearbox systems use heat treatments to exacting specifications to impart vital material properties such as fatigue strength and surface hardness.



Gears begin life as carburised steel bar or forging, selected to minimise part distortion.



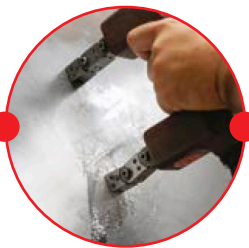
Parts are machined to shape.



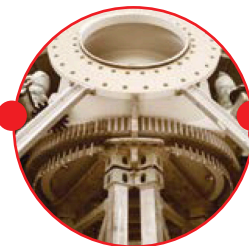
The gears are machined to final specifications.



Gears are nitrocarburised to minimise distortion and provide optimum fatigue resistance, with precise process parameters to ensure allowance for final grinding tolerances.



Gears are inspected using magnetic particle inspection to check for any cracks.



The gears are assembled into the drivetrain of the turbine.



End application,  
**wind turbine.**

Denotes the parts of the component journey undertaken by Bodycote