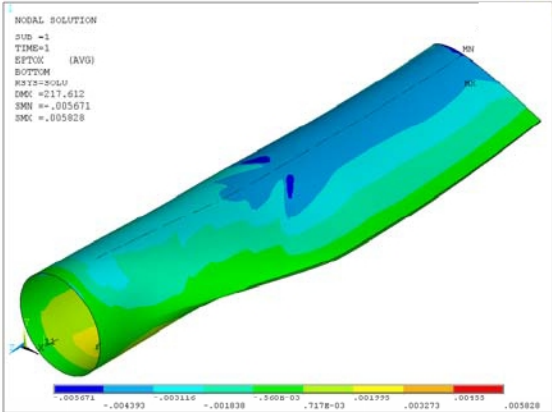
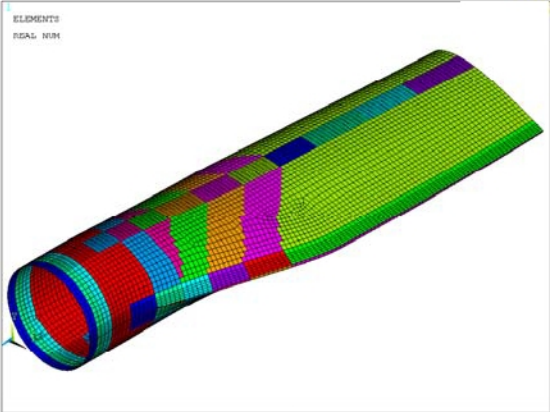
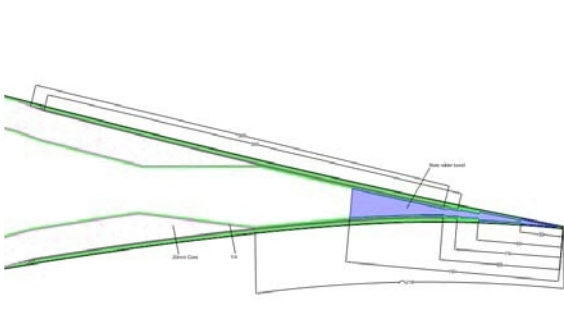
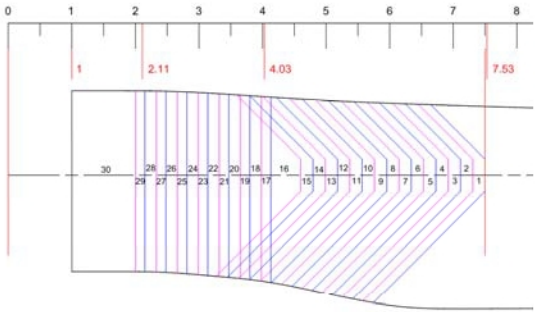


Case study - 30m blade design for Vergnet GEV-HP 1MW wind turbine



Structural design and analysis models



Construction drawings

Photos ©Vergnet Groupe



Blade in factory



Rotor on prototype turbine

Case Study - 30m blade design for the Vergnet GEV HP 1MW wind turbine

Client: [Vergnet SA](#)

Project Start: 2006

Project Delivery: 2008

Aerotrope produced the blade's CAD surface geometry definition for mould manufacture, starting from a functional aerodynamic description. Our engineers also developed new root transition aerofoils in-house as part of the fairing process. We carried out preliminary feasibility studies and fully detailed structural engineering in preparation for manufacture and certification of the 30m GRP blade, the largest turbine in Vergnet's Farwind® range.

This two-blade wind turbine has a patented lowering system, making it possible to lower the upwind part of the nacelle. The GEV HP addresses the specific needs of complex sites, especially for cyclonic areas. Designed for easy transport to remote locations of the world and for cost-effective maintenance, it is suitable for installation in harsh climates and complex, remote terrain.

The design of its components therefore focuses on enhanced robustness and reliability and introduces a nacelle and blades that can be serviced at ground level. The wider, thicker rotor blades feature a high strength-versus-weight ratio and high elasticity, which results in an increased lifetime. The patented Birdlike® -system makes this turbine earthquake- and hurricane-proof, using guy wires to fly down the upwind part of the nacelle and blades easily and rapidly.

The Vergnet GEV HP 1MW Class IIIA wind turbine was granted GERMANISCHER LLOYD IEC 61400-1 certification for a 20-year fatigue life. It complies with the requirements of the respective standard regarding Load Assumptions, Strength Verification and Safety Concept.

"Aerotrope counts among the most important design, modelling and engineering consulting firms in the field of wind power today; they are setting standards in an environment of constant and rapid technological evolution."

Laurent Vergnet, Managing director, Operations, Vergnet Eolien

Aerotrope Ltd.
Independent Experts in Wind Turbine Blade Design

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