



EUROS offers:

- Rotor blade design since 1996
- Rotor blade manufacturing since 1999
- Licenses and technology transfer worldwide

Offshore Competence

First Experience

- 2003–2004 manufacturing of first six offshore prototype blades at EUROS facility in Ustroń in South of Poland
- The longest rotor blades worldwide at the time of production with length of 56.5 m and weight of 16.5 t delivered for 5 MW Multibrid M 5000–116 wind turbine
- Implementation of carbon fibre in the spar caps and in the root part

Next Generation

- 2009 start of development of offshore rotor blade with a length of over 80 m
- Highly skilled EUROS engineering team cooperated close with one of the world leading heavy industry companies on development of rotor blades for next generation wind turbines for 6–10 MW installed power
- Offshore R&D program was started and completed in 2013



Wind tunnel test

R&D Topics:

- | | |
|--|--|
| 1. CFRP Spar Cap Strength and Quality | 10. Coating Systems |
| 2. Design and Test of Large Sandwich Panels and Joints | 11. De-Icing / Ice Prevention |
| 3. Root Reinforcing Lamination | 12. Condition Monitoring System (CMS) |
| 4. Blade Construction | 13. Direct Roving Process |
| 5. Alternative Structural Adhesives | 14. Automation |
| 6. Lightning Protection System (LPS) | 15. General Design Aspects |
| 7. Manufacturing Methods | 16. Aeroelastics |
| 8. Non-Destructive Testing (NDT) | 17. Mould Design for Large CFRP Rotor Blades |
| 9. Transport, Handling and Positioning of Large Blades Parts | |



Lightning protection test, tip part

Design Features

- Development of new airfoils for the flatback root and tip section to increase the body volume for enhanced lightweight design
- Wind tunnel tests of the new airfoils were conducted before implementation into the design
- Development of sophisticated lightning protection system as protection of the conductive and sensible carbon fibre parts from any lightning strike
- The corresponding test program was based on newest technology and worldwide significant standards



Lightning protection test, mainboard



Prototype Production

- Opening of preliminary production hall for manufacturing of first prototype rotor blades with length of 80+ m in the ferry port Sassnitz, Germany in February 2013
- Production of seven blades; one blade for test purposes, six blades for two 7 MW offshore prototype wind turbines

Static and Fatigue Test

- The first 80+ m offshore rotor blade has successfully passed the static and fatigue test at the Fraunhofer Institute (IWES) in Bremerhaven, Germany
- No damages occurred during and after all tests
- The test results match extremely well with all relevant design values



Offshore blade, length 80+ m, demoulding



Offshore blade, length 80+ m, edgewise test



Roll out of 80+ m offshore test blade



Offshore blade, length 80+ m, flapwise test



Offshore blade, length 80+ m, Sassnitz, Germany

EUROS Entwicklungsgesellschaft für
Windkraftanlagen mbH
Falkenberger Straße 146 A/B
13088 Berlin, Germany

Phone: +49 30 854 01 09-00
Fax: +49 30 854 01 09-29
E-Mail: euros@euros.de
www.euros.de

