



Germanischer Lloyd

Note on Engineering Details

No: DWM-HoBe-extern-001

Title: Required amount of receptors in rotor blades

Ref.: GL Wind "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004.
Section 8.9.3.9 Lightning conduction from rotor blades

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Key Words: rotor blade, receptor, lightning conductor, lightning protection

The number of receptors to be installed in rotor blades leads up to now to intensive discussions and needs further research.

Germanischer Lloyd WindEnergie GmbH (GL Wind) gives in section 8.9.3.9 of the GL Wind "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004 the note that from a rotor radius of 30 m, at least two receptors shall be distributed evenly over the rotor blade.

Additionally, the technical report IEC 61400-24 states for a rotor blade constructed entirely from non-conducting materials that lightning attachment points are mostly found close to the tip. But attachment points can also be found randomly distributed at other positions along the length of the blade. Furthermore for blades up to 20 m, it appears that receptors at the tip of the blade are adequate. It may be necessary for longer blades to have more than one receptor to obtain the desired interception efficiency.

With the above mentioned note and under consideration of the TR IEC 61400-24 GL Wind would like to point out that each rotor blade longer than 30 m should be equipped with at least 2 receptors on the suction side and additionally at least 2 receptors on the pressure side.

Because of the ongoing research and the not yet finalized conclusion of the involved parties the above mentioned note has to be considered as a recommendation which reflects at this point the most efficient design of the rotor blades lightning protection system, giving the best possible protection for the rotor blades from lightning threat.

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