

Note on Engineering Details

No: DWM-Czar-extern-001

Title: **Applicability of Section 7.3.5.2 (2) of the "Guideline for the Certification of Off-shore Wind Turbines" for the certification of on- and offshore wind turbines**

Ref.: GL Wind "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004, Section 7.3.5.2 (2)

GL Wind "Guideline for the Certification of Offshore Wind Turbines", Edition 2005, Section 7.3.5.2 (2)

Contact: Dr. Karl Steingröver, email: karl.steingroever@gl-group.com,
phone: +49 40 36149 7440

Key Words: Yaw bearing, pitch bearing, static load-bearing capacity

The analysis of the static load-bearing capacity under extreme load and the applicable permissible stresses as well as the applicable safety factors had been subject of quite a few discussions in the Wind Turbine Committee during the meetings regarding the new 'Offshore' guideline.

It was congruently stated that the static load-bearing capacity f_s , which is defined in Section 7.3.5.2 (1) refers more to classical roller bearings with through hardened raceways than to slewing bearings with usually induction or flame hardened raceways and different specifications regarding hardening depth and heat treatment.

The decision to change Section 7.3.5.2 (2) in the "Guideline for the Certification of Offshore Wind Turbines", Edition 2005 was not made due to special offshore requirements but due to the realisation that the wording of Section 7.3.5.2 (2) of the "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004 did not really fit to state of the art design calculations for yaw and pitch bearings.

Therefore GL Wind decided to change Section 7.3.5.2 (2) of the "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004 within the next regular revision of the guideline accordingly and furthermore GL Wind will accept design calculations of yaw and pitch bearings according to Section 7.3.5.2 (2) of the "Guideline for the Certification of Offshore Wind Turbines", Edition 2005 also when the respective component or wind turbine is to be certified according to the "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004.

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Bodo Helm
Managing Director

Mike Woebbecking
Head of Department

Arne Czarnojan
Author

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Managing Directors: Lutz Wittenberg (Spokesman) • Dr Hans Berg
Germanischer Lloyd Industrial Services GmbH, Registered Office Hamburg No. HR B 86804

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