

Interactive comment on “Fatigue lifetime calculation of wind turbine blade bearings considering blade-dependent load distribution” by Oliver Menck et al.

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This manuscript describes and compares three different approaches to calculate the load distribution and the lifetime blade bearings undergoing repetitive oscillations, for which the methods included in the Standard ISO 281 need to be adapted in order to take into account of different assumptions. The load calculation is based on FEM simulations. The manuscript is well organized and clearly written.

The following issues should be addressed:

1. With reference to the FEM model described by Figures 1 and 2, where the mesh is

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shown, it would be interesting to have some additional information in the text (number of elements, computational time, etc.).

2. In the connection of the bearing to the mating surfaces, the effect of the bolts and of the friction forces is not considered and the component is modelled as bonded to the mating surfaces: the conclusion that the influence of this simplification is assumed to be negligible should in my opinion be supported by some additional discussion or speculation. In large bearings supported by deformable structures, the connection of the bearing to the structure can be critical. For this reason, even if this aspect does not affect the main objective of the paper, whose most relevant contribution remains the comparison among the different ways in which calculated loads are introduced in the determination of the equivalent load, some discussion on the bolting of the bearings rings and of its potential impact on the loads on the rolling element would improve the quality of the paper.

3. It would be interesting to include some contour to show the results of the simulation (e.g. stresses, displacements, etc.).)

4. I suggest to avoid the use of citations in the Conclusions. If they are relevant, it would be preferable to add and discuss them in the text, without repeating in the Conclusions.

5. In some parts of the text, as for instance in paragraph 2.3, the use of linking words is suggested to connect the sentences. Right now, each sentence is really short, and it seems to read a list of bullet points. Even if In this way the message is very clear, I would suggest a more fluid style.

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