Review Form 3

PART 1: Comments

	Reviewer's comment	Author's Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	The manuscript, *"Contact Stress Analysis of the Slewing Bearing of Truck Cranes,"* is a valuable contribution to the scientific community, particularly in the field of mechanical design and the application of slewing bearings in lifting industries. The contact stress analysis using both Hertzian theory and the Finite Element Method (FEM) provides a comprehensive approach that supports the improvement of bearing design and service life.	Thanks to the reviewers for their comments.
Is the title of the article suitable? **(If not please suggest an alternative title)**	The current title is appropriate but could be more specific, for example: *"Comprehensive Contact Stress Analysis of Slewing Bearings in Truck Cranes: A Combined Hertzian and FEM Approach"*	Thanks for the reviewer's suggestions.
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract could be enhanced by clearly summarizing key results, such as the deviation between theoretical and simulated results, as well as the implications of these findings for practical design.	Thanks for the reviewer's suggestions. The reasons for the error are added after the theoretical theory and simulation results.
Is the manuscript scientifically, correct? Please write here.	Relevant to the article content	Thank you so much for your careful check.
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	Consider selecting newly published works in the last 5 years to include in the reference material to further confirm the timeliness of the research.	Thank you so much for your careful check.

Is the language/English quality of the article suitable for scholarly communications?	Relevant to the article content	Thank you so much for your careful check.
Optional/General comments	**1) Advantages of the article:** - The manuscript has a clear and logical structure, transitioning effectively from theory to simulation and conclusions. - The combined approach of theoretical analysis and FEM enhances the reliability of the results. - The study evaluates the influence of key design parameters (contact angle, ball size, ball count) on contact stress, offering practical insights for design optimization. **2) Limitations:** - The nonlinear interactions in the problem (e.g., interactions between radial and axial loads) are not clearly explained. - The study focuses solely on static loads and does not consider dynamic load conditions or environmental effects. - There is no experimental validation to compare against the FEM results. **3) Some questions from reviewers:** 1. Why does the study focus exclusively on static load conditions (125%) without extending to dynamic loads? How might dynamic loads affect the contact stress results? 2. Does the FEM analysis include a mesh sensitivity test to ensure accuracy? If so, please elaborate on the procedure. 3. The assumptions of Hertzian theory (e.g., material homogeneity) may not align with the practical non-homogeneous nature of materials like 42CrMo. Can the theoretical model be improved to account for these factors? 4. Parameters such as the number of balls and ball size are suggested to reduce contact stress. However, these changes may increase production costs and bearing weight. Have other optimization methods been considered? 5. Can this study's findings be applied to other bearing designs (e.g., triple-row roller bearings or tapered bearings)? If not, what are the specific limitations? 6. Does the author plan to conduct experimental validation to compare with FEM results? If not, why? 7. Is there any plan to extend the study to consider harsh environmental conditions (e.g., high temperatures, humidity, or dust)? 8. Can this model be integrated with modern optimization methods (e.g., machine learning or optimization algorithms) to enhance bearing design?	Thank the reviewers for pointing out the problems in the manuscript. Due to the lack of experimental conditions, no experimental research has been carried out. The answers to your questions are as follows: 1、There is a certain dynamic load in the work of the truck crane, but in most working conditions, the crane load is relatively stable. The dynamic load mainly exists in the process of crane starting and sudden braking, which will lead to the increase of contact stress. 2、I apologize for my oversight. In this way, a new grid is divided and the contact stress under different element sizes is solved. The radius of the short axis of the contact ellipse is 0.67mm, the size of the contact element is 0.31mm, 0.32mm, 0.33mm, 0.34mm, 0.35mm, 0.36mm, and the number of meshes obtained is 554033, 509597, 471394, 434660, 402613, 375262, respectively. The finite element analysis results were 2494.3MPa, 2460.2 MPa, 2566.8 MPa, 2375 MPa, 2206.8 MPa and 2447.6 MPa, respectively. When the size of the contact element is 0.31mm, 0.32mm, 0.33mm, the error of the stress result is less than 5%. 3、There will always be macroscopic or microscopic inhomogeneity of materials. Many researchers have tested the applicability of Hertz's hypothesis. 4、The change of these parameters is more economical than other ways. In the process of manufacturing, these methods are relatively easy to achieve. 5、The main limitation of the research on other bearing designs is that the rolling body and raceway shapes are different. However, it can provide method reference for other bearing design. 6、Because the actual situation does not meet the test requirements, no test research has been carried out. 7、High temperature, humidity, dust and other bearing contact stress does have an impact. However, after considering these factors, the solution of the finite element model is too complicated, and the existing calculation conditions cannot be completed. If the conditions are available, a study in this regard will be considered. 8、The contact stress under different structural parameters can be obtained more accurately through modern optimization algorithm. At present, this study only focuses on the contact stress, and the optimization will be studied in the future.

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Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	There are no ethical issues with this manuscript.