

**Review Form 3**

Journal Name:	<a href="#">Journal of Engineering Research and Reports</a>
Manuscript Number:	Ms_JERR_123931
Title of the Manuscript:	<b>Thermo-structural Comparative Analysis of Internal Combustion Engine Piston by Finite Element Methods</b>
Type of the Article	<b>Original Research Article</b>

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**PART 1: Review Comments**

<b>Compulsory</b> REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p><b>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</b></p>	<p>This manuscript is significant for the scientific community as it provides a detailed comparative analysis of two critical materials, Al6061 and AlSiC-12, for use in piston manufacturing in internal combustion engines. The study's comprehensive approach, incorporating both thermo-structural analysis and experimental validation, offers valuable insights into the performance and safety of these materials under realistic operating conditions. By highlighting the superior performance of AlSiC-12 in terms of deformation, strain, and safety factors, the manuscript presents a compelling case for its adoption in engine design, potentially leading to more efficient and durable engines. The rigorous methodology and clear presentation of results make this manuscript a valuable contribution to the field of material science and mechanical engineering.</p>	
<p><b>Is the title of the article suitable? (If not please suggest an alternative title)</b></p>	<p>Yes</p>	
<p><b>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.</b></p>	<p>Suggestions for Addition:</p> <p>Significance: Emphasize the practical significance of the findings for engine design and performance.</p> <p>Comparison Summary: Include a brief comparison of the two materials' performance and why AlSiC-12 might be preferable in certain scenarios.</p> <p>Suggestions for Deletion:</p> <p>Technical Details: Avoid overly detailed technical results that may be more appropriate for the main body of the article.</p>	
<p><b>Are subsections and structure of the manuscript appropriate?</b></p>	<p>Overall, the subsections and structure have described appear appropriate, but attention should be paid to the clear separation of results from discussions and ensuring all key sections are included and appropriately detailed</p>	
<p><b>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</b></p>	<p>The manuscript demonstrates scientific robustness and technical soundness through its detailed analytical approach and thorough examination of both Al6061 and AlSiC piston materials. The use of finite element analysis (FEA) to investigate thermo-structural properties, including total deformation, elastic strain, stress distribution, and strain energy, provides a comprehensive assessment of the materials' performance under specified conditions. The inclusion of modal analysis further supports the technical depth of the study, validating the performance of the modified material against established benchmarks. Additionally, the comparison with experimental data from grey cast iron pistons enhances the reliability of the findings, ensuring that the theoretical results align with practical expectations. Overall, the manuscript's rigorous methodology and detailed analysis underscore its scientific correctness and contribute valuable insights to the field of materials engineering and piston design.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>Yes</p>	

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Minor REVISION comments <b>Is the language/English quality of the article suitable for scholarly communications?</b>	The language and English quality of the article are generally suitable for scholarly communication, with clear descriptions of the methodologies, results, and conclusions. However, some sections could benefit from refinement for better clarity and readability. For instance, technical terms and results should be presented in a consistent and precise manner, and sentences should be structured to avoid ambiguity. Additionally, ensuring that figures and tables are clearly referenced and discussed in the context of the text will enhance the overall readability. Minor grammatical and stylistic improvements could further polish the manuscript, making it more accessible and professional for a scholarly audience.	
Optional/General comments	<ul style="list-style-type: none"><li>• The manuscript demonstrates a clear and thorough approach to the study with detailed analyses and results.</li><li>• It effectively compares the performance of Al6061 and AlSiC-12 materials, highlighting significant findings and implications.</li><li>• However, there are areas for improvement, such as the abstract's completeness, the clarity of some sections, and the need for more detailed discussion in the introduction and literature review. Refinements in language and presentation would enhance the manuscript's clarity and impact.</li></ul>	

### PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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