Structure parameter optimization and bearing limit analysis of the expansion unit of three-roller tube expander

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Review timeline
Original submission: 18 October 2019
Revised submission: 1 April 2020
Final acceptance: 16 April 2020

Note: Reports are unedited and appear as submitted by the referee. The review history appears in chronological order.

Review History

RSOS-191630.R0 (Original submission)

Review form: Reviewer 1

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No

Recommendation?
Accept with minor revision (please list in comments)
Comments to the Author(s)
Thank you for submitting, this is an interesting manuscript and it should be published. Here a few minor comments that may help further improving this work:

Abstract:
Please clearly state what you trying to investigate here - try to make this more concise. What are you numerically simulating - what were the results you obtained.

Introduction:
- another large market for tube expanders are heat exchangers - could your research be relevant for this market as well?

General Comments:
- What are the underlying formulars used for your calculations? I think you should mention at least 3 and compare the results to other results from the literature.
- Haneklaus et al. (https://www.sciencedirect.com/science/article/abs/pii/S0924013616300644) see file attached, list a number of different methods to estimate the applied pressure. Please try to compare to results obtained with this data

You could cite this article and the other articles listed there. At the moment you have a large number of Chinese references, which may not represent all the research that was done in this area.

Review form: Reviewer 2

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No

Recommendation?
Accept with minor revision (please list in comments)

Comments to the Author(s)
This paper studies and analyzes the critical technical issues for the structure design of three-roller tube expander. It is indicated that the expansion unit structure is the main influencing factor for the performance of three-roller tube expander. The major design parameters and key parts of the expansion unit structure of 12 1/4" three-roller tube expander was optimized by theoretical analysis and finite element numerical simulation method. The research results are of great significance and reference value for the development of expandable bellows drilling. Overall, the article is well organized and its presentation is excellent. However, some minor issues still need to be improved:
1. Pay attention to the format specification of the pictures in the article, especially pictures 10 and 12.
2. Read through the full text carefully, and try to modify the words, sentences or paragraphs that are ambiguous or confusing, and strive to describe refinement, smoothness and accuracy.
3. The conclusion part of the manuscript should be rewritten to emphasize the importance of investigated subject.
4. Please keep the reference style uniform and add some recent references.
5. There are some Chinese words in Figure 15.

Decision letter (RSOS-191630.R0)

14-Feb-2020

Dear Professor Bi,

The editors assigned to your paper ("Structure Parameter Optimization and Bearing Limit Analysis of the Expansion Unit of Three-roller Tube Expander") have now received comments from reviewers. We would like you to revise your paper in accordance with the referee and Associate Editor suggestions which can be found below (not including confidential reports to the Editor). Please note this decision does not guarantee eventual acceptance.

Please submit a copy of your revised paper before 08-Mar-2020. Please note that the revision deadline will expire at 00.00am on this date. If we do not hear from you within this time then it will be assumed that the paper has been withdrawn. In exceptional circumstances, extensions may be possible if agreed with the Editorial Office in advance. We do not allow multiple rounds of revision so we urge you to make every effort to fully address all of the comments at this stage. If deemed necessary by the Editors, your manuscript will be sent back to one or more of the original reviewers for assessment. If the original reviewers are not available, we may invite new reviewers.

To revise your manuscript, log into http://mc.manuscriptcentral.com/rsos and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision. Revise your manuscript and upload a new version through your Author Centre.

When submitting your revised manuscript, you must respond to the comments made by the referees and upload a file "Response to Referees" in "Section 6 - File Upload". Please use this to document how you have responded to the comments, and the adjustments you have made. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response.

In addition to addressing all of the reviewers' and editor's comments please also ensure that your revised manuscript contains the following sections as appropriate before the reference list:

- Ethics statement (if applicable)
If your study uses humans or animals please include details of the ethical approval received, including the name of the committee that granted approval. For human studies please also detail whether informed consent was obtained. For field studies on animals please include details of all permissions, licences and/or approvals granted to carry out the fieldwork.
• Data accessibility
It is a condition of publication that all supporting data are made available either as supplementary information or preferably in a suitable permanent repository. The data accessibility section should state where the article's supporting data can be accessed. This section should also include details, where possible of where to access other relevant research materials such as statistical tools, protocols, software etc can be accessed. If the data have been deposited in an external repository this section should list the database, accession number and link to the DOI for all data from the article that have been made publicly available. Data sets that have been deposited in an external repository and have a DOI should also be appropriately cited in the manuscript and included in the reference list.

If you wish to submit your supporting data or code to Dryad (http://datadryad.org/), or modify your current submission to dryad, please use the following link:
http://datadryad.org/submit?journalID=RSOS&manu=RSOS-191630

• Competing interests
Please declare any financial or non-financial competing interests, or state that you have no competing interests.

• Authors’ contributions
All submissions, other than those with a single author, must include an Authors’ Contributions section which individually lists the specific contribution of each author. The list of Authors should meet all of the following criteria; 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published.

All contributors who do not meet all of these criteria should be included in the acknowledgements.

We suggest the following format:
AB carried out the molecular lab work, participated in data analysis, carried out sequence alignments, participated in the design of the study and drafted the manuscript; CD carried out the statistical analyses; EF collected field data; GH conceived of the study, designed the study, coordinated the study and helped draft the manuscript. All authors gave final approval for publication.

• Acknowledgements
Please acknowledge anyone who contributed to the study but did not meet the authorship criteria.

• Funding statement
Please list the source of funding for each author.

Once again, thank you for submitting your manuscript to Royal Society Open Science and I look forward to receiving your revision. If you have any questions at all, please do not hesitate to get in touch.

Best regards,
Lianne Parkhouse
Editorial Coordinator
Royal Society Open Science
openscience@royalsociety.org

on behalf of the Associate Editor, and Professor R. Kerry Rowe (Subject Editor)
openscience@royalsociety.org
Associate Editor's comments:

Two reviewers have provided commentary on your manuscript, which you should pay close attention to and provide responses to in both the revised (and clearly marked up) manuscript and your point by point response. It has been noted that your manuscript may benefit from support from professional language editors, examples of which may be found at https://royalsociety.org/journals/authors/benefits/language-editing/. Pllkea

Reviewers' Comments to Author:

Reviewer: 1
Comments to the Author(s)

Thank you for submitting, this is an interesting manuscript and it should be published. Here a few minor comments that may help further improving this work:

Abstract:
Please clearly state what you trying to investigate here - try to make this more concise. What are you numerically simulating - what were the results you obtained.

Introduction:
- another large market for tube expanders are heat exchangers - could your research be relevant for this market as well?

General Comments:
- What are the underlying formulars used for your calculations? I think you should mention at least 3 and compare the results to other results from the literature.
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You could cite this article and the other articles listed there. At the moment you have a large number of Chinese references, which may not represent all the research that was done in this area

Reviewer: 2
Comments to the Author(s)

This paper studies and analyzes the critical technical issues for the structure design of three-roller tube expander. It is indicated that the expansion unit structure is the main influencing factor for the performance of three-roller tube expander. The major design parameters and key parts of the expansion unit structure of 12 1/4” three-roller tube expander was optimized by theoretical analysis and finite element numerical simulation method. The research results are of great significance and reference value for the development of expandable bellows drilling.

Overall, the article is well organized and its presentation is excellent. However, some minor issues still need to be improved:

1. Pay attention to the format specification of the pictures in the article, especially pictures 10 and 12.
2. Read through the full text carefully, and try to modify the words, sentences or paragraphs that are ambiguous or confusing, and strive to describe refinement, smoothness and accuracy.
3. The conclusion part of the manuscript should be rewritten to emphasize the importance of investigated subject.
4. Please keep the reference style uniform and add some recent references.
5. There are some Chinese words in Figure 15.

Author’s Response to Decision Letter for (RSOS-191630.R0)

See Appendix A.

RSOS-191630.R1 (Revision)

Review form: Reviewer 1

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No

Recommendation?
Accept as is

Comments to the Author(s)
Well done

Review form: Reviewer 2

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No
Recommendation?
Accept as is

Comments to the Author(s)
This article is well modified and can be published as it is now.

Decision letter (RSOS-191630.R1)

We hope you are keeping well at this difficult and unusual time. We continue to value your support of the journal in these challenging circumstances. If Royal Society Open Science can assist you at all, please don’t hesitate to let us know at the email address below.

Dear Professor Bi,

It is a pleasure to accept your manuscript entitled "Structure Parameter Optimization and Bearing Limit Analysis of the Expansion Unit of Three-roller Tube Expander" in its current form for publication in Royal Society Open Science. The comments of the reviewer(s) who reviewed your manuscript are included at the foot of this letter.

You can expect to receive a proof of your article in the near future. Please contact the editorial office (openscience_proofs@royalsociety.org) and the production office (openscience@royalsociety.org) to let us know if you are likely to be away from e-mail contact -- if you are going to be away, please nominate a co-author (if available) to manage the proofing process, and ensure they are copied into your email to the journal.

Due to rapid publication and an extremely tight schedule, if comments are not received, your paper may experience a delay in publication.

Please see the Royal Society Publishing guidance on how you may share your accepted author manuscript at https://royalsociety.org/journals/ethics-policies/media-embargo/.

Thank you for your fine contribution. On behalf of the Editors of Royal Society Open Science, we look forward to your continued contributions to the Journal.

Kind regards,
Royal Society Open Science Editorial Office
Royal Society Open Science
openscience@royalsociety.org

on behalf of the Associate Editor and Professor R. Kerry Rowe (Subject Editor)
openscience@royalsociety.org

Associate Editor Comments to Author:

Thanks for addressing the reviewers’ concerns.

Reviewer comments to Author:

Reviewer: 1
Comments to the Author(s)

Well done
Reviewer: 2  
Comments to the Author(s)  

This article is well modified and can be published as it is now.

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https://www.facebook.com/RoyalSocietyPublishing.FanPage/  
Read Royal Society Publishing’s blog: https://blogs.royalsociety.org/publishing/
Appendix A

Dear Editor,

On behalf of my co-authors, we thank you very much for giving us an opportunity to revise our manuscript, we appreciate editor and reviewers very much for their positive and constructive comments and suggestions on our manuscript entitled “Structure Parameter Optimization and Bearing Limit Analysis of the Expansion Unit of Three-roller Tube Expander” (ID: RSOS-191630).

We have studied reviewer’s comments carefully and have made revisions which are highlighted in red in the revised manuscript. We have tried our best to revise our manuscript according to the comments. Attached please find the revised version and point by point responses to the reviewers’ comments which we would like to submit for your kind consideration.

We hope that the revised version of the manuscript is now acceptable for publication in your journal. Looking forward to hearing from you.

Thank you and best regards.

Yours sincerely,
Gang Bi

Point by point responses to the reviewers’ comments:

Reviewer: 1

Comments to the Author

(1) Abstract: Please clearly state what you trying to investigate here - try to make this more concise. What are you numerically simulating - what were the results you obtained.

Response: According to reviewer's opinion, the abstract was revised and refined in detail, which were marked in red in the 1st page of the revised manuscript.

(2) Introduction: another large market for tube expanders are heat exchangers - could your research be relevant for this market as well?

Response: In this paper, the expandable bellows technology is mainly applied in the field of oil drilling engineering. As for the heat exchangers, it may have common properties with the expandable bellows. However, I think they should be two different tools.

(3) What are the underlying formulas used for your calculations? I think you should mention at least 3 and compare the results to other results from the literature.

Response: According to reviewer's opinion, we have added related formulas for our calculations, which were marked in red in the 7th page of the revised manuscript.
(4) Haneklaus et al. see file attached, list a number of different methods to estimate the applied pressure. Please try to compare to results obtained with this data. You could cite this article and the other articles listed there. At the moment you have a large number of Chinese references, which may not represent all the research that was done in this area.

Response: In this paper, the expandable bellows technology is mainly applied in the field of oil drilling engineering. In Haneklaus’s article, the three roller tube expander is used in the field of coil-wound heat exchangers. We think that they are two completely different areas. And Haneklaus’s article has been cited in the 3rd page of the introduction.

Reviewer: 2

Comments to the Author

(1) **Pay attention to the format specification of the pictures in the article, especially pictures 10 and 12.**

Response: According to reviewer's opinion, we have modified the format specification of the pictures, including 10 and 12, which was marked in red in the 12th and 14th page of the revised manuscript.

(2) Read through the full text carefully, and try to modify the words, sentences or paragraphs that are ambiguous or confusing, and strive to describe refinement, smoothness and accuracy.

Response: According to reviewer's opinion, we have modified and refined the full text in detail and strive to describe refinement, smoothness and accuracy.

(3) **The conclusion part of the manuscript should be rewritten to emphasize the importance of investigated subject.**

Response: According to reviewer's opinion, we have rewritten the conclusion part of the manuscript, which was marked in red in the 17th and 18th page of the revised manuscript.

(4) **Please keep the reference style uniform and add some recent references.**

Response: According to reviewer's opinion, we have carefully checked and modified the reference style and added some recent references, which was marked in red in the 20th page of the revised manuscript.

(5) **There are some Chinese words in Figure 15.**

Response: According to reviewer's opinion, we have modified the picture 15, which was marked in red in the 16th page of the revised manuscript.