Dear Editors and Reviewers:

Thank you for your letter and for the reviewers' comments concerning our manuscript entitled "Research on Hot Stamping-Carbon Partition-Intercritical Annealing Process of Medium Manganese Steel" (ID: **materials-2106594**). Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. Revised portion are marked in red in the paper. (The figure captions are marked red if the figure have been modified or added) The main corrections in the paper and the responds to the reviewers' each comments are as flowing:

Responds to Reviewer2's comments:

1. Response to the comment: "There is no information about process parameters in the abstract section. They should be added."

Response 1: The process parameters were added in the abstract.

2. Response to the comment: "In the introduction section, there is no literature review in detail. There is only 1 paragraph (Page 2 Line 51-62) and it does not contain any depth. It is necessary to add a detailed literature search, including previous studies in the literature and the findings obtained as a result of these studies. In addition, the evaluation of the studies in the literature, and the differences between your own study should be stated and the novelty should be mentioned."

Response 2: Thanks for the advice. More detailed literature research was conducted and the differences between our study and others' in the literature has been performed. The novelty of this study has been stated and mentioned in the introduction section.

The corresponding modification has been made in paragraph 2, page 2.

3. Response to the comment: "How are Ac1 and Ac3 temperature values determined for this steel type?"

Response 3: The Ac1 and Ac3 temperature values were determined for this steel type by thermal expansion tests. As shown in figure 1, the Ac1 and Ac3 temperature values were calculated as 595℃ and 740℃, respectively.

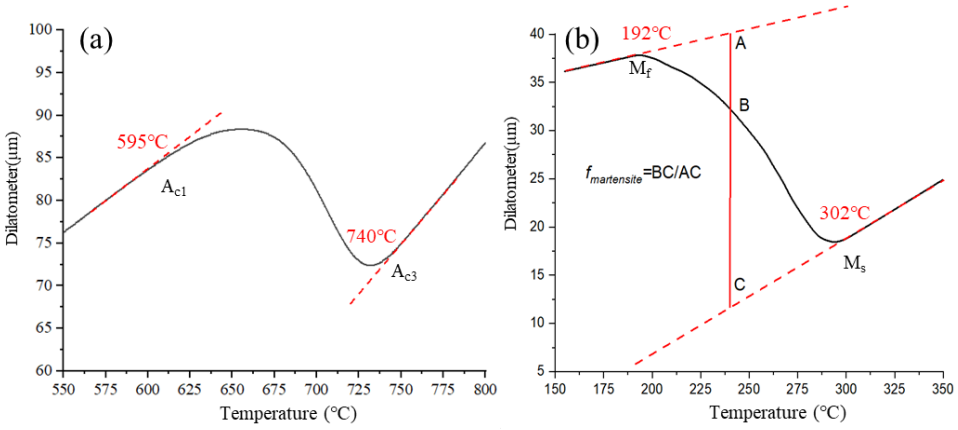

Figure 1 Temperature-Dilatometer curve: (a)Heating stage;(b) Cooling stage.

4. Response to the comment: "The chemical composition of the steel is not given in detail. It should be given as a table and the elements in its content should be given in detail. Page 2 Although the chemical composition is given in a sentence in Line 72, different elements that affect the Ac1 and Ac3 temperature values are present in the steel. Also, describe your method for determining the chemical composition."

Response 4: Thanks for the meaningful advice. The chemical composition of the steel was now given in table 1 as follows and the chemical composition was determined by the Direct Reading Spectrometer.

Table 1. Chemical composition (wt.%) of medium manganese steel.

C	Mn	Si	Fe
0.18	4.6	0.23	Bal.

5. Response to the comment: "The article titled "Microstructural features and mechanical properties of 22MnB5 hot stamping steel in different heat treatment conditions" can be referenced in calculating Ac1 and Ac3 temperatures. Here, information about the calculation of these temperature values is given."

Response 5: Thanks for the valuable information. The article has been carefully read and referenced in our modified manuscript.

3. Cavusoglu O, Cavusoglu O, Yilmazoglu AG, et al. Microstructural features and mechanical properties of 22MnB5 hot stamping steel in different heat treatment conditions [J]. Journal of Materials Research and Technology, 2020, 9: 10901-10908.

6. Response to the comment: "The mechanical property values obtained for (QP-300, IA-680, and QA-680) steels should be presented as a table or graphic. This will be helpful to the reader."

Response 6: The mechanical property values was now given in table 2 as Reviewer suggested.

Table 2 The mechanical property values of the three processes.

	UST(MPa)	TEL(%)	PSE (GPa%)
QP-300	1295	20.2	26.2
IA-680	1027	30.0	30.8
QA-680	1184	36.8	43.6

7. Response to the comment: "In the results and discussion section, the results were not supported by the literature. The results given in graphics and figures should be supported by the literature, or if they are inconsistent with the literature, the reasons should be explained."

Response 7: Thanks for the advising. The results of this research are consistent with the results obtained by the literature, such as that pointed out in paragraph 2, page 10:

"The austenite reversion during the intercritical annealing can be accelerated by the preexisted austenite [33], which can be obtained by the QP process."

8. Response to the comment: "There are many articles on hot forming that have been published in recent years and even next year. However, it has been seen that there are generally old sources in the references section. More new references may be added or some references replaced."

Response 8: More articles involving in hot stamping have been added in our references list as Reviewer suggested, which were published in recent year. Thanks for the valuable advice.

The corresponding modification has been made in references section.

We tried our best to improve the manuscript and made some changes in the manuscript. These changes will not influence the content and framework of the paper. And here we did not list the changes but marked in red in revised paper.

We appreciate for Editors/Reviewers' warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestions.