JoVE55524R2

**Response to Reviewers’ Comments**

Editorial comments:

Changes to be made by the Author(s):

Protocol Step 5.2: How is the stretching done? Is this software controlled? Please mention the steps involved. This is essential to ensure that our scripting team can plan filming accordingly after the manuscript is accepted.

*Thanks. This information has been added on P4.*

Please ensure that your discussion covers the following in detail: 1) modifications and troubleshooting, 2) limitations of the technique, 3) significance with respect to existing methods, 4) future applications and 5) critical steps within the protocol.

*Thanks. All has been covered. Information on 1) and 5) has been shown in the first paragraph of the Discussion section, p6. Information on 2) and 3) has been shown in the second paragraph. Information on 4) has been shown in the last paragraph.*

   
After you have made all of the recommended changes to your protocol (listed above), please adjust the highlighting to identify 2.75 pages or less of text (which includes headings and spaces) that should be visualized to tell the most cohesive story of your protocol steps. Please see JoVEs instructions for authors for more clarification. Remember that the non-highlighted protocol steps will remain in the manuscript and therefore will still be available to the reader. Please bear in mind that the complete video filming process (if the manuscript is accepted) will be completed within one day (typically 6-8 hours).

*Thanks. Text has been highlighted.*

 Grammar:  
-Please copyedit the manuscript for article usage (a, an, the).  
-Long abstract – “to enable determination of forming limits of an alloy various temperatures and strain rates”

-5.2 – “the trigger button connected the high-speed camera”

*Thanks. Grammar problems above have been corrected.*

   
Visualization: 2.1 is confusingly labeled. Objects are plural even when a single object is indicated. Are there 4 of each specimen holder, carriage, and top plate? This is not clear and very confusing. Please also provide a photograph of the setup for step 2.2.1 and 2.3; this can be included as a supplemental file.

*All have been changed to be singular noun. There are 4 carriages, specimen holders and top plates. They are identical in the figure. Figure 3 has been added.*

   
Additional detail is required:

-1.1 – How is this done? Please provide a citation.

*Laser cutting and milling are basic mechanical method to machine samples. Nothing is special here but just follow the standard steps of using the machines. Names of the machine are listed in the Materials table.*

-1.2 – What is meant by “in gauge sections?”

*Improved on p2.Gauge section is widely used to define the concerned region on a specimen.*

-1.3 – What is used to spray the white dots? Is there a particular distance from the sample?

*Information has been added on p2. The same spray as the black one, the name of spray had been listed in the Materials table.*

-2.1.1 – How is coupling performed?

*Information has been added on p3.*

-2.1.4 – How is each arm clamped?

*Each arm is clamped by screw bolts. This has been stated.*

-2.2 – How does one set up grips?

*Figure 3 has been added.*

-2.3.2 – Which apparatus? Is the specimen put in the specimen holder?

*Yes. This has been added.*

-3.4 – What central region? It sounds as though air from the arms is being blown to the center of something. Is this what you mean?

*Yes. This has been clarified.*

   
Results:  
-Figure 1 – Please include a scale bar.

*Added as suggested.*

   
-Figure 3 – Please define the symbols in the figure legend. It is not entirely clear which label goes with which condition in the chart.

*Added as suggested.*

**Reviewers' comments:**  
**Reviewer #1:**  
*Manuscript Summary:*  
Good  
*Major Concerns:*  
No  
*Minor Concerns:*  
Could all the figures be with coloured images/artwork ?

*Figure 1, the lens is only for black-white images recording. Figure 2, no colour of all metal components anyhow. Figure 3 and Figure 4 are in colour now.Thanks.*

*Additional Comments to Authors:*  
N/A  
  
  
**Reviewer #2:**  
*Manuscript Summary:*  
This paper proposed a new experiment method for the determination of forming limit of sheet metals under hot stamping condition. The FLD obtained is important and useful for hot stamping at high speed and high temperature.  
*Major Concerns:*  
N/A  
*Minor Concerns:*  
In the last sentence of long abstract, it seems that at is missed before various.

*This has been corrected.*

*Additional Comments to Authors:*  
several related papers maybe added in the references;  
[1] Xiao-bo Fan, Zhu-bin He, Wen-xuan Zhou, Shi-jian Yuan, Formability and strengthening mechanism of solution treated Al-Mg-Si alloy sheet under hot stamping condition, Journal of Materials Processing Technology , 2016, 228: 179-185  
[2] Xiaobo Fan, Zhubin He, Peng Lin, Shijian Yuan, Microstructure, texture and hardness evolutions of Al-Cu-Li alloy sheet during hot gas forming with integrated heat treatment, Materials & Design, 2016,94:449-456  
[3] Xiaobo Fan, Zhubin He, Kailun Zheng, Shijian Yuan, Strengthening behavior of Al-Cu-Mg alloy sheet in hot forming-quenching integrated process with cold-hot dies, Materials & Design, 2015, 557-565

*Ref [11] has been referred.*

**Reviewer #3:**  
*Manuscript Summary:*  
Presented in this paper study provide insight into hot stamping problems. The presented technique can be used to evaluate formability of metals by introducing a novel biaxial testing apparatus onto a resistance heating uniaxial testing machine. The problem is of special significance to gain better insight into to determine forming limits of metal sheets under complex testing conditions. Hence, it is an interesting problem from the point of view of metal forming.  
*Major Concerns:*  
N/A  
*Minor Concerns:*  
It is possible to make a number of criticisms. For example, Fig.2 showing the setup of the testing equipment is unclear. Improving the visibility of the principle of operation would be very helpful. Also the message resulting from Fig. 1 is insignificant. This is just some info about the DIC methodology. It would be better to present photos of the samples after the tests.

*Figure 2 is just the assembly of the biaxial apparatus instead of the entire testing set-up. Figure 1 was added according to previous editorial suggestions and now a photograph after stretching has been added. Figure 3 is added to show the set-up clearly. Thanks.*

*Additional Comments to Authors:*  
N/A