



SimulateComplete® - Process Engineering

Job No: 5169

Client:

zzSample Job

John Citizen

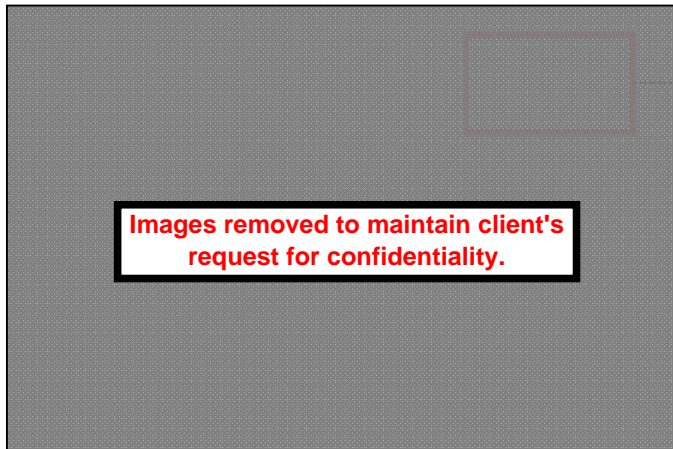
john.citizen@mail.com



sample_model.igs



CAD data repair:
sample_model_repair.x_t



Images removed to maintain client's request for confidentiality.

sample_part_drawing.tif

Introduction

The client requested a complete **progression** process development for the supplied part.

The requested outputs were:

1. Simulation results (formability/thinning)
2. Forming forces
3. Die face data (tool surfaces)
4. Developed blank shape
5. Springback analysis

Preparation

Before the progression design and simulation could commence, the supplied CAD data required repair.

The supplied CAD model was adjusted to match the supplied product drawing as closely as possible.

Only one area of the part could not be modelled as shown in the drawing. The repaired CAD model reflects the true representation of a sheet metal part.

THIS IS A 3D REPORT. CLICK ITEMS TO ACTIVATE CONTROLS. VIEW WITH ADOBE READER v8.1

Disclaimer

StampingSimulation.com takes every care to ensure simulation results are as practical and accurate as possible. Differences between the simulation parameters and an actual physical tool may yield different results. These results are used at your own risk.

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AUSTRALIA 4405



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Developed Blank

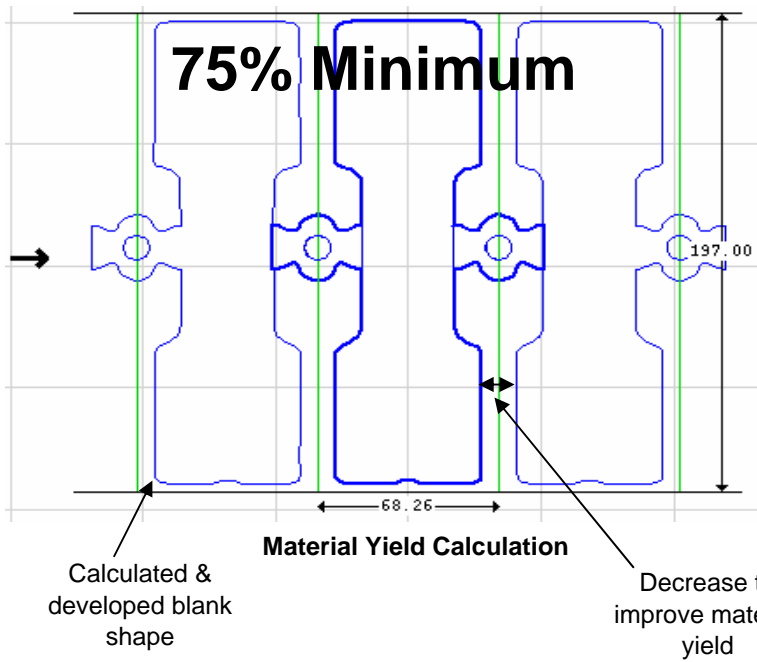
Blank Shape Development

A blank shape was calculated and optimized through the forming process.

The result shows a 100% developed blank which should be used as the starting point for blank development during first tryout.

Do not use this data to cut the trim steels directly. Always trial a laser cut/wire cut prototype blank first.

Using this blank as the starting point, blank development time on the shop floor can be significantly reduced.



Material Yield

A minimum material yield of 75% is easily achieved with the layout shown.

However, the client may wish to further improve the yield by setting the parts **closer** together. The tool designer should decide how close is acceptable.

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Forming Processes and Calculated Forces

1			<p>Crash Form Forming Force: 25 tons</p>
2	<p>Punch Pad Post</p>		<p>Wipe Sides Pad Pressure: 30 tons Forming Force: 44 tons</p>
3	<p>Punch Pad Post</p>		<p>Final Form Pad Pressure: 3 tons Forming Force: 33 tons</p>
5		<div data-bbox="755 1459 852 1543">4</div>	<p>Pierce Holes Cutting Force: 8 tons</p> <p>Extrude Holes Forming Force: 22 tons</p>

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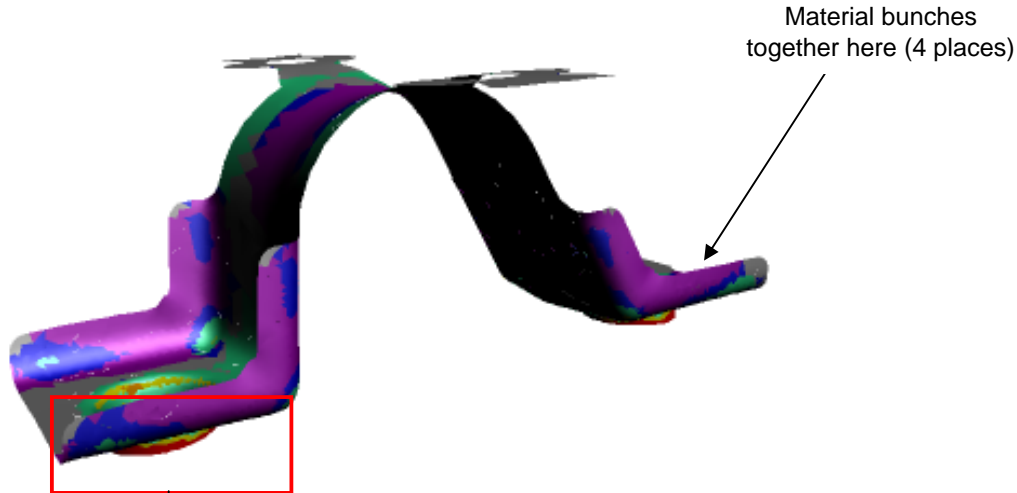
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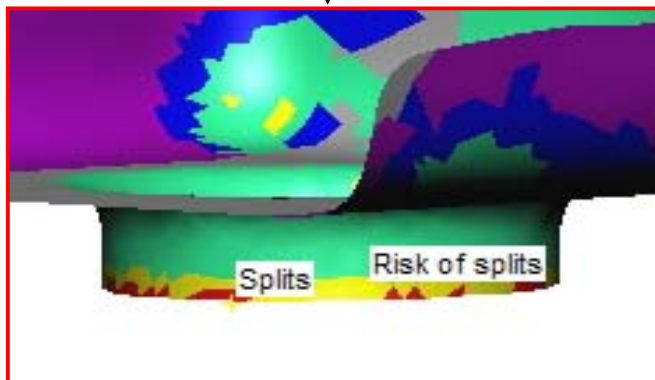
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Formability



Formability Analysis

The formability analysis shows that the part forms, with two minor concerns:

1. Small splits in the end of extrusions
2. Material gathering (bunching up)

The client should indicate if these problems can be accepted or not, before simulating countermeasures to avoid the the predicted problems.

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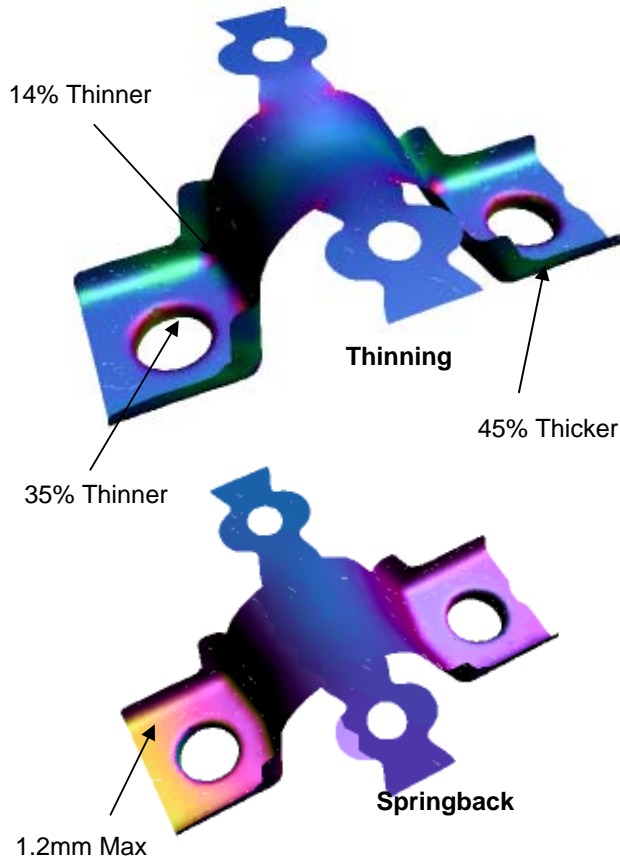
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Thinning

The thinning result shows material thickness change over the part, after forming. The thinnest and thickest points are highlighted.

The large amount of thickening confirms a wrinkle (bunch up) of material in the areas indicated.

Springback

A springback analysis was also performed. The maximum amount of springback is predicted to be **1.2mm** on the face shown.

If this amount is unacceptable, the client's tool designer should add a restrike station OR use an existing station to restrike or overbend.

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This concludes the quoted work as per quotation #000-5169.

This is a 3D Report, viewable with the latest version of Adobe Acrobat Reader. 3D items are clickable to active controls such as rotate, pan and zoom.

If you have any further questions or requests with regards to this part, please do not hesitate to contact us.

Regards
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