



Case Study

Lock-M-Out Window Locking Bracket

www.lynar.co.uk

Development Process of 'Lock-M-Out' Window Locking Bracket

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1. Summary

Lock-M-Out (a designer / manufacturer of window locking brackets) came to Lynar Manufacturing requiring a quicker / better method of production due to increasing sales requirements. This has been driven by his recent sales activities both in the UK and in Europe.

2. Introduction

The product in question is a caravan window security bracket fitting to the plastic moulded handle of a mobile motor home. The bracket was low volume and is made in a home workshop using laser cut blanks with basic multiple operation form tooling.

Example of original hand-made bracket



3. Product Detail

The bracket secures the window of the motor home or caravan as shown above. Once the bracket is in place, anyone from outside the caravan would not be able to gain entry via the weak points in the windows due to the extra locking system the bracket provides.

More information on the product can be found at www.lock-m-out.co.uk

4. Initial Design Methodology

Several meetings were held with the customer to ascertain their needs and to re-design the production of the window locking brackets. By doing this, we aimed to make the process more efficient and cost effective, whilst simultaneously streamlining the production to meet the demand for higher volumes Lock-M-Out we're now receiving.

The following design changes were made to achieve this goal:

1. Removal of two small holes from the part used for jigging when black powder coated. This improved the aesthetics of the component and improved the tool life considerably.
2. Change of coating supplier to improve finish.
3. Bracket made smaller in length to incorporate two different designs this also reduced material and packing costs.
4. Identification stamp added to help stop the copying of this bracket.

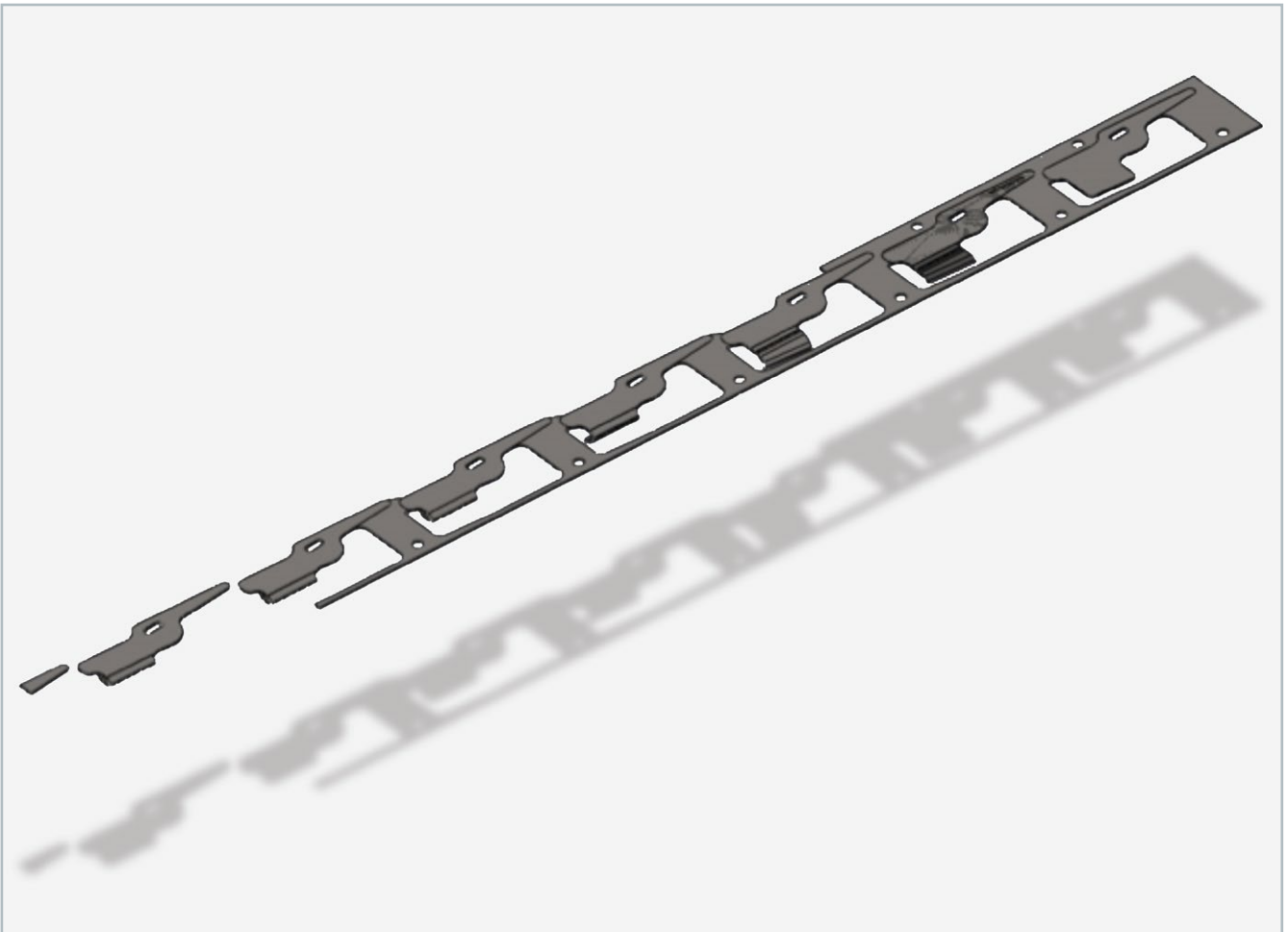
5. Findings

A wrapped form on the bracket would pose some complications when designing the tool, yet a solution was found by creating a progression tool. This alleviated any initial issues that arose and not only would it reduce the amount of operations needed to produce the part to one, it would further ensure a competitive component price in the market by reducing production time and decrease the degree of labour intensity to complete a finished part.

6. Tool Design

Several tool designs were considered with different directions of feeding the part. Again to reduce tooling costs, a method of progression was decided on, which had a large pitch and a small strip width. This tool had a simple pivot bar design to form the wrap under where as other designs utilised a more complex cam system or formed the part upwards which would be troublesome in production.

3D Strip Layout

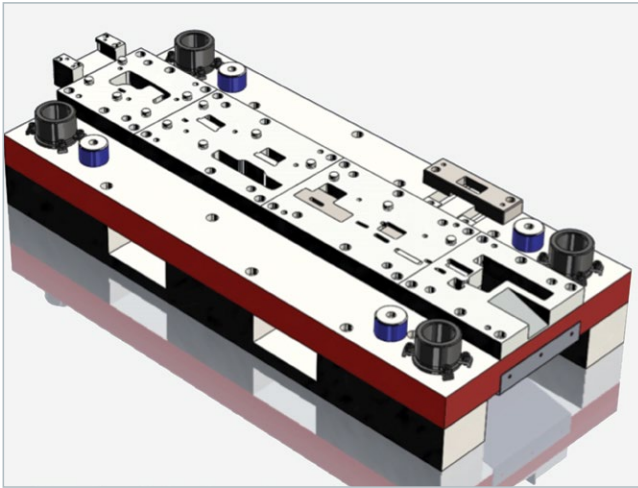


The design was drawn in 3D Cad using the latest Solidworks software.

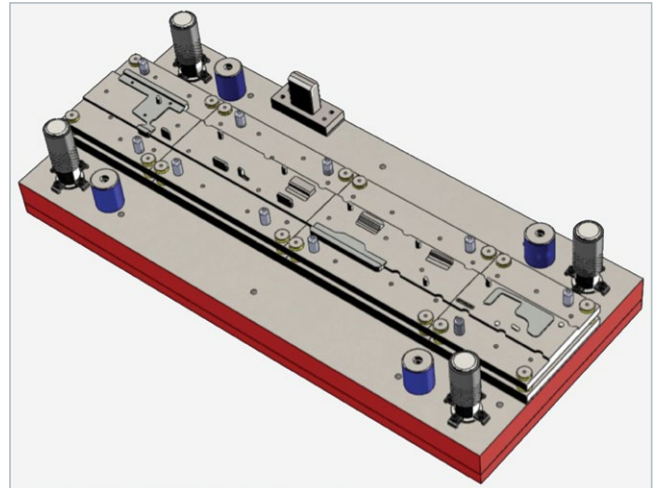


For more info on this software see: www.innova-systems.co.uk

3D Bottom Tool



3D Top Tool

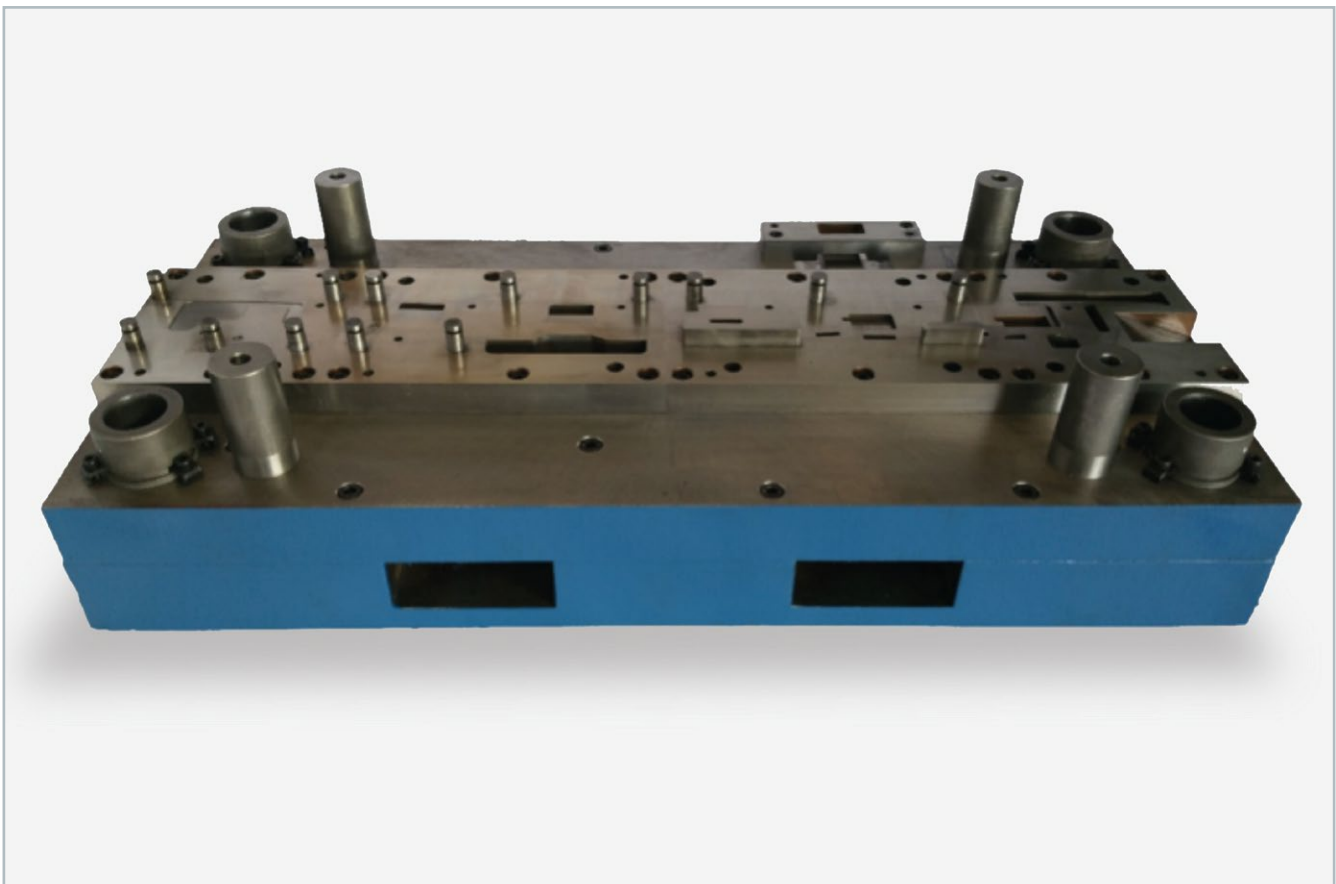


7. Tool Manufacture

The tool was manufactured quickly over a number of weeks and included a bespoke machined / flame cut die set (again to reduce tool costs), adjustable pivot bar form and D2 dies.

On first sampling the progression tooling ran immediately with only a small modification needed to be to the final form. Successful samples were supplied first time resulting in another very satisfied customer!

Final Progression Tool in The Flesh



8. Production

A small initial batch was run easily with the parts being powder coated, sticker applied and bagged up.

Final Part Shown in Action



Final Part Shown in Action



9. Conclusion

A successful first project for a new customer!

By liaising with Lock-M-Out from the beginning we were able to develop and produce quality parts first time at a low cost.

One final advantage to our tool design is that the tooling is easily adjustable (on the final form) to allow the tooling to produce other variants giving further flexibility to our clientele.

10. Testimonial



Good morning Sean/Steve, a big thanks for all the work you guys have done. The tooling is superb and on time and the finished product is spot on. I'm very happy great job well done.

Chris Goff Managing Director for Lock-M-Out



11. Acknowledgements

Many thanks to:

Chris Goff
Managing Director
Lock-M-Out

Sophie Waters
Regional Accounts Manager
Innova Systems

12. Copyright



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