

Dutton Simulation significantly extends Honda of the UK Manufacturing Ltd's (HUM) formed part evaluation process

After evaluating several options, Honda of the UK Manufacturing Ltd (HUM) chose Forming Technologies' COSTOPTIMIZER, supplied by Dutton Simulation, to generate flat blank patterns and nesting layouts from 3D CAD models of its formed parts. This assisted in obtaining accurate piece costs for the vehicle through efficient material utilisation within the manufacture of all its stamped parts. Particularly relevant to HUM was the software's speed and ease of use. Additionally, it found that the software produced a very close estimation of blank size and had powerful nesting capabilities which enabled it to optimise its material consumption. Trevor Dutton, Managing Director of Dutton Simulation said, "We are very excited to be working with HUM. They have demonstrated that COSTOPTIMIZER can pay for itself many times over through accurate evaluation of the manufacturing options for formed parts."

COSTOPTIMIZER has significantly increased the scope of what HUM can successfully analyse and evaluate

Verify material sizes

COSTOPTIMIZER is able to import CAD models and uses finite element analysis techniques to develop a flat blank. The software also highlights potential formability problem areas through a thickness distribution plot, so that users can make an informed decision about tool design and manufacturing methods. Additionally, the developed blanks can be nested, with the ability to add extra material for the draw die allowance and the cut and carry allowance required for progression tools. The



resulting nest layout can then be edited by deliberately overlapping parts or reducing coil width to highlight product changes which will reduce overall material cost. Before the introduction of COSTOPTIMIZER, blank development necessitated many tedious calculations and was mainly limited to folded parts, making it very difficult to verify material sizes suggested by suppliers.

Savings in both material and tooling

With COSTOPTIMIZER HUM can now use the results it has obtained for blank developments and nests to discuss the technical merits of different manufacturing strategies with its suppliers and toolmakers. For example, different nesting strategies can reduce the coil width and also the overall size of the stamping tool, making savings in both material and tooling costs. Furthermore, an analysis of the manufacturing options helps the company to identify avenues for potential future savings.

Evaluate options for a net cost saving

By combining flat pattern development with the nesting in COSTOPTIMIZER, HUM can examine different options, considering one part or two parts per blow, mirrored nesting, and part edge bridging so that it can make value judgments about component orientation, tool complexity, and the most economic strip size. In some instances the result may be a more complex tool layout than originally anticipated, but combined with improved material utilisation during production the company can still arrive at a net cost saving.

Working in partnership

The level of support provided by Dutton Simulation has been of significant benefit to HUM, helping it to resolve any software or usage related issues. In addition, Dutton Simulation's close relationship with FTI has enabled it to pass on requests for software enhancements, some of which have already been implemented in the latest releases of COSTOPTIMIZER. HUM aims to maximise the effectiveness of the software by targeting larger and higher value pressings and it clearly recognises the advantages to be gained from extending its application. Most of the company's parts are formed rather than folded. The old methods were laborious and inaccurate. COSTOPTIMIZER has significantly increased the scope of what it can successfully analyse and evaluate. Trevor Dutton concluded, "By working in partnership with HUM we will be able to help them gain further advantages from their investment through enhancement of the software's capabilities, and assistance with the more diverse and complex applications they intend to implement."

About Dutton Simulation

Dutton Simulation, founded by Trevor Dutton works in partnership with its customers to resolve complex metal forming problems. It offers the latest computing methods to simulate metal formability from Forming Technologies Inc



and Engineering Technology Associates for cost estimating, part design feasibility, and press tool simulation. The company also offers a consultancy service and range of training courses to enable users to understand both the fundamental and advanced elements of formability analysis.

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