
DIE FACE DESIGN IN MINUTES: NEW SHEET METAL FORMING SIMULATION SOFTWARE

Paris, June 2016 — [ESI Group](#), a leading innovator in [Virtual Prototyping](#) software and services for manufacturing industries, is launching 'Die Starter'. It is a new solution, which enables die face designers to drastically reduce the number of iterations needed to establish a feasible tool design. This solution automatically designs the first complete die face including binder, addendum, bead centreline and blank contour.

The optimization function of Die Starter performs fully automatic a series of simulations in order to find the best compromise between feasibility (no cracks!) and minimal material consumption (lowest piece price!), by adjusting binder shape, drawbead values and addendum geometry.

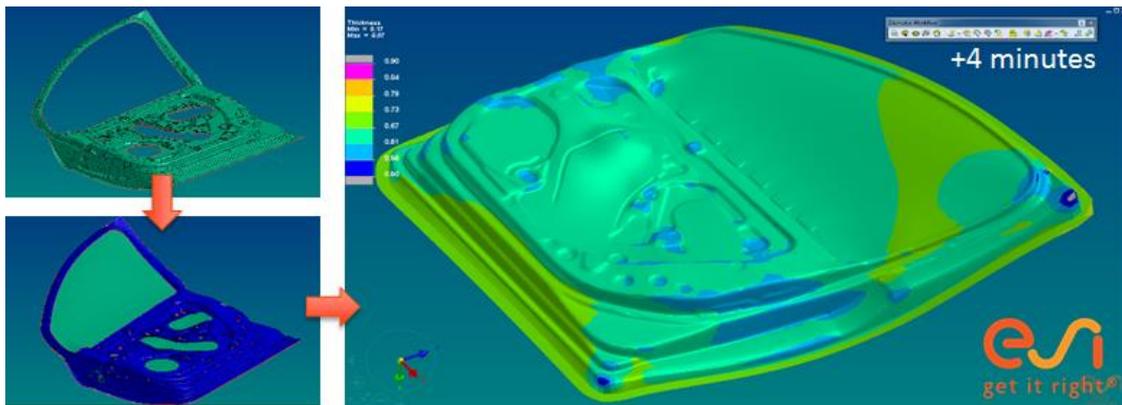


Image: Automated Die Face Design with Die-Starter, the new module of ESI PAM-STAMP.

Die Starter allows users to efficiently do a feasibility simulation already at the styling and part design phase. No stamping knowledge is needed at this point as it is fully automated. The only thing the user has to take care of is to create a part without undercut, smooth outline and no holes. Fast and easy-to-use functionality to achieve

this pre-requisite has been integrated in the product. The die face design and feasibility check is completed in a few minutes and optimization of the initial design in a few hours with ESI's advanced mathematical algorithms.

The Die Starter die face geometry can be modified directly in the [ESI PAM-STAMP](#) die face design module or loaded into any CAD system for manual modifications and improvements. Full die surface from Die Starter, including process and material information, can be exported to [ESI PAM-STAMP](#) simulation environment through a dedicated link which reduces the set-up time by 80-90%.

Without the Die Starter module, these processes are often carried out manually through trial and error. Die Starter operates with state-of-the-art visual displays and is integrated in ESI's CATIA® V5 and [ESI Visual-Environment](#) based die face design modules.

Super-fast, Die Starter built on a powerful surfaces engine, with many additional benefits, including:

- Integrate flanges into addendum automatically to allow for vertical trim in a following operation
- Handle symmetric parts
- Fast and robust part replace in case of part design modifications
- Highly automated data transfer to [ESI PAM-STAMP](#) simulation environment
- Fastest and most accurate feasibility solver in the market

ESI PAM-STAMP is a market leader in the field of forming simulations. Next to the die face design modules, PAM-STAMP contains various other products and modules with which engineers can design, optimize and verify metal forming processes virtually. This includes cold and hot sheet metal forming, tube bending, hydroforming, superplastic forming, patched, welded and tailored blanks forming. PAM-STAMP is used in all industries, including automotive, aerospace, electronics, and appliances.

At the *quoting* stage, users can determine blank outlines based on the 3D part model directly or by taking into account the binder and addendum geometry (generated by e.g. the Die Starter module) and optimize the nesting in a coil for material cost minimization. Additionally also a fast part feasibility analysis can already be performed. In the *feasibility* phase, die face designers can model the tool face surfaces, and engineer a successful forming process without cracks and wrinkles, to specifications,

including trimming, flanging and (roll) hemming operations. Additionally also blank shape and trimline optimization can be considered.

In the *validation* phase, engineers can precisely estimate springback, compensate the die set in the drawing operation or across multi-operations, and detect and visualize cosmetic defects as is normally done on the shop floor. For the press hardening process, validation of the cooling efficiency of 3D tools is possible with a heat transfer or a true fluid-flow (CFD) analysis. Finally, since manufacturing affects material properties, which in turn affect the overall product performance, the results of a forming simulation can be used to engineer a welding assembly process or crash analysis with the goal to keep the assembly within tolerances and improve product performance.

For more information, go to <http://www.esi-group.com/software-solutions/virtual-manufacturing/sheet-metal-forming>

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About ESI Group

[ESI Group](#) is a leading innovator in Virtual Prototyping software and services. Specialist in material physics, [ESI](#) has developed a unique proficiency in helping industrial manufacturers replace physical prototypes by virtually replicating the fabrication, assembly and testing of products in different environments. Today, coupled with Virtual Reality, animated by systems models, and benefiting from data analytics, [Virtual Prototyping](#) becomes immersive and interactive: ESI's clients can bring their products to life, ensuring reliable performance, serviceability and maintainability. ESI solutions help world-leading OEM's and innovative companies make sure that their products will pass certification tests - before any physical prototype is built - and that new products are competitive in their market space. Virtual Prototyping addresses the emerging need for products to be smart and autonomous and supports industrial manufacturers in their digital transformation.

Today, ESI's customer base spans nearly every industry sector. The company employs about 1100 high-level specialists worldwide to address the needs of customers in more than 40 countries. For more information, please visit www.esi-group.com/

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